JPRS 78898

3 September 1981

USSR Report

TRANSPORTATION

No. 54

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AIR

NEW PLANES TESTED IN UKRAINE

New YaK-42

Kiev PRAVDA UKRAINY in Russian 1 Jul 81 p 4

[Interview with Acting First Deputy Chief A. S. Chernyshev of the Ukrainian SSR Civil Aviation Administration: "The YaK-42 Is in the Skies Over the Ukraine"; date and place not specified]

> [Text] A new liner, the YaK-42, has entered the Ukraine's air routes. Our correspondent met with A. S. Chernyshev, acting first deputy chief of the Ukrainian SSR Administration for Civil Aviation, and asked him to answer a few questions.

[Question] What can you say about this new air liner?

[Answer] The YaK-42 is intended to make short flights of up to 1,800 kilometers and can carry 120 passengers. This is a modern and comfortable plane. It is equipped with a powerful air conditioner, with low levels of noise and vibration in the lounge area. It has two built-in boarding and deplaning ramps--at the front and rear. The interior has been decorated in light, restful colors. Modern lightweight but durable materials were used for the furnishings.

[Question] On which routes will the new plane be used?

[Answer] First of all, let me say something about international flights. The YaK-42 will begin making regular flights between Kiev and Prague on 7 July. It was 45 years ago that the inhabitants of Kiev saw the ANT-9 plane take off on its first international flight to Prague, along the Moscow-Bryansk-Kiev-Jassy-Kluj--Uzhgorod-Kosice-Prague route. Twenty years later, in October 1956, the era of jet passenger flights was ushered in on this route. The pilot who made the first flight on the TU-104 jet is now the minister of civil aviation, Chief Marshal of Aviation Boris Pavlovich Bugayev.

On interrepublic routes the YaK-42 will first be used in flights between Poltava and Kherson and between Donetsk and Kiev. Later its area of operations will be broadened.

[Question] What kind of new passenger services will Aeroflot be offering?

[Answer] We are trying to move our customer services as close as possible to our passengers' places of residence and employment. There are 71 airline sales offices just in Kiev, including some at enterprises, in travel agencies and in organizations where tickets are generally sold by non-staff cashiers on commission. Staff cashiers work in ticket offices in hospitals, self-service department stores, railroad stations and bus stations. Besides this, Aeroflot also has ticket offices in 23 rayons in Kiev Oblast.

This year a new system will be instituted for the reservation of seats through Moscow. These reservations can now be made in any Aeroflot ticket office because they all have direct access to the Sirena signal board.

It will be easier to purchase return tickets. Passengers can buy tickets to return from 49 airports in the nation. They can also purchase tickets on board airplanes flying to Simferopol'.

The main office of the central agency now has the first section of the Telesin automated information system, which transmits video information about airplane schedules and vacancies.

Technical plans have been drawn up for the installation of an automated ticket sales system, the ASU-5, in 1983. It will considerably augment the productivity of the cashiers' labor.

We are still improving our system of taking ticket orders by phone and delivering the tickets to the customer's home, his hotel or his place of employment. In just the first 5 months of 1981 around 60,000 passengers made use of this service.

[Question] What other new planes will be flying over the Ukraine?

[Answer] The L-410 15-seat plane, developed by Czechoslovak aircraft builders, has started flying over Bukovina. It flies from Chernovits to Cherkassy and Rovno. Its flight map will be broadened in the future. We are now testing the AN-28, a plane of the same type as the L-410, developed in the design bureau of O. K. Antonov.

Plans for AN-32

Kiev PRAVDA UKRAINY in Russian 8 Jul 81 p 4

[Article by T. Kuznetsova: "The Liner Gains Altitude"]

> [Text] All of the searching, anxiety and months of intense labor are over: The AN-32 plane is ready. After tens of thousands of kilometers of test and demonstration flights under the most varied conditions, it has been given a high evaluation by experts.

The small clearing in the Tibetan mountains did not look anything like an airfield. Encircled by wooded slopes with rushing waterfalls, it had never welcomed a winged vehicle before. The skies were gray on the day of the planned flight. The clouds hung motionless over the mountain peaks. But the pilot would have to fly without any kind of radar equipment.

"It was a difficult flight," Yu. V. Kurlin, honored test pilot of the USSR and pilot of the AN-32, recalled. "I knew the plane inside-out and had no doubts that the flight would be successful. But I did not expect everything to go so smoothly, without the slightest hitch. The AN-32 performed beautifully. It easily flew across the range under the clouds, flew through the winding alpine 'corridor' with no trouble and landed without any difficulty, coming to a stop 500 meters from the cliff."

This was followed by flights from the world's highest airfield in the Himalayas and take-offs with 180-degree turns adjacent to mountain ranges. Not once, neither on land nor in the sky, did the AN-32 waver or let the pilot down, demonstrating its extreme reliability. And it seems only right that this plane has aroused the interest of Indian aviators, who have long dreamed about this kind of safe, economical and undemanding plane that feels at home in alpine airfields.

The aircraft developed in the design bureau of general design engineer and Hero of Socialist Labor O. K. Antonov are primarily transport planes. The AN-8, AN-12, AN-24T, AN-26, AN-22 and AN-72 are all distinguished by good flight engineering features, reliability and trouble-free operation. The AN-32 is a fitting addition to the winged family. This lightweight transport plane is a modified AN-26 plane, which has proved to be so reliable for carrying freight on medium-range flights. The AN-32 has retained all of the good qualities of its predecessor but surpasses it in terms of flight speed and altitude, carrying capacity and some other indicators.

Its high power-to-weight ratio allows the new aircraft to take off from small airfields. In one flight the AN-32 can carry up to 6 tons of cargo for distances of around 1,000 kilometers at a speed of 580 kilometers an hour. The engines can be started with an inside starter mechanism. Loading has been simplified to the maximum; it is done through a large hatch of unique design, patented in Italy, Canada, the United States and other countries. The hatch closes with a ramp which can then be used as a gangway for power-driven equipment after the plane has landed. The plane has also been adapted for the shipment of freight on standard pallets.

Now let us look at the new freight liner through the eyes of a pilot.

"The long list of its merits could begin with the fact," Yu. V. Kurlin said, "that the AN-32 is quite easy to fly. It flies at an altitude of up to 8,000 meters. But this is not apparent on board. The cabin is pressurized and equipped with air conditioners."

The plane is equipped with the latest radar communication and navigational systems for flights inside and outside the nation. Another safety feature is the de-icing system and an "ice-fighter"--a device developed in the design bureau to protect the tail assembly. It works even if the system breaks down.

"Do not forget to emphasize that the new transport plane's projected service life is 20 years and that it will not require any repairs in the first 5," V. A. Garvardt, holder of the Ukrainian SSR State Prize, summed up our discussion of the AN-32. "This plane's productivity is 1.5 times as great as that of the AN-26, and its operating cost is 40 percent lower."

Soon the new cargo plane will become a familiar vehicle, establishing air routes to inaccessible alpine locations.

8588
CSO: 1829/310

AIR

BRIEFS

YAK-42 IN SERVICE--Annually more than 100 million people use Aeroflot--the largest airline in the world. Concurrently with the constant increase of new air routes (today Aeroflot's planes fly to 107 cities in 87 countries of the world) the airplanes are being introduced on international routes. Yesterday the first passengers boarded a Yak-42 airplane which will complete the route between Kiev and Prague. It's wide introduction in domestic and international flights is an important step in the future development of air transportation. Col Eng M. Rebrov. [Text] [Moscow KRASNAYA ZVEZDA in Russian 8 Jul 81 p 4]

CSO: 1829/341

MOTOR VEHICLE

INTERVIEW WITH DEPUTY AUTOMOTIVE INDUSTRY MINISTER

Moscow GUDOK in Russian 17 Jul 81 p 4

[Interview conducted by D. Sasorov of the Novosti Press Agency: "Motor Vehicle Production Prospects"]

[Text] We are seated in the very center of Moscow, in the building of the Ministry of the Automotive Industry of the USSR. This is the headquarters that directs the activity of the nearly 300 plants of the industry. We are talking with Velentin Petrovich Kolomnikov, Deputy Minister. In his 50 years he has had extensive industrial experience: since leaving the institute he has worked as a shop foreman and shop superintendent, later becoming plant chief engineer, and then director and managing director of the Avtomoskvich Production Association. Our first question to the Deputy Minister was:

Q. In the "Basic Directions of Economic and Social Development of the USSR in 1981-1985 and for the Period to 1990" the problem was posed of improving the structure of the motor vehicle fleet and increasing the proportion in this fleet of vehicles of large cargo capacity. How do you plan to resolve this problem?

A. The primary role will be played by the Kama complex of plants [KamAZ], the design capacity of which is 150,000 trucks and 250,000 diesel engines. Over 90 percent of the increase in truck output during the Five-Year Plan will be KamAZ vehicles. As you know, the KamAZ family of products requires trailers and semitrailers. Their output at the specialized plants is being increased. In addition a plant has been constructed at Nizhnekamsk to produce two models of heavy trucks--the ten-ton KamAZ-5511 for transporting construction and commercial cargos, and a truck-trailer rig with three-way dump body for agricultural use.

The output of truck-trailer rigs at the Minsk Auto Plant and open-pit mine dump trucks at the Belorusskiy Auto Plant (Zhodino) is being increased. Vehicles of cargo capacity up to 120 tons are already being produced for work in the open-pit mines and a 180-ton vehicle has been tested.

Extensive capital construction was accomplished at the Belorusskiy Auto Plant during the last Five-Year Plan and is continuing today; modern production-line equipment is being installed, for example programmed numerically controlled machine tools, which will make it possible to improve the quality of the vehicles.

Q. Naberezhnyye Chelny, Minsk, Zhodino--all these are cities where motor vehicles with diesel engines are being produced. Does this mean that we are talking about not only the development of heavy-cargo vehicles but also preferential production of motor vehicles operating on diesel fuel?

A. You are quite right. We started the changeover to "dieselization" some time back. Consider the facts: diesel fuel is cheaper than gasoline and the engine service life is longer than for the carbureted engine. These are purely economic arguments. But there are also the questions of ecology and protection of the environment. The diesel engine is less toxic than the gasoline engine.

For this reason diesel engine output will be increased at the Moscow Likhachev Auto Plant and at the Urals Auto Plant, and preliminary efforts are under way to convert the Gorkiy Auto Plant vehicles to diesel engines. The high-speed LAZ-4202 motor bus has been developed at the L'vov Plant for the international routes. It is also equipped with a diesel engine.

The Yaroslav Engine Plant will initiate production of the model 840 diesel. This is a whole family of diesel engines that range from 6 to 12 cylinders and differ from one another in power. These engines will also be used by the Leningrad Tractor Plant for the Kirovets K-701 "main national tractor."

Q. Your ministry was criticized at the 26th CPSU Congress for inadequate attention to modernization of urban public transportation, which is used by millions of people every day. What do you say to this?

A. The criticism is valid. They were speaking of the Likino Motor Bus Plant, located near Moscow. It is the primary producer of urban motor buses in the country. The plant will be reconstructed in the very near future and will initiate production of a new motor bus.

Q. Agriculture has been and still is a major user of motor vehicles. But until recently agriculture has used conventional trucks, though they have to traverse both unpaved areas and plowed fields. Can you describe the recently developed purely agricultural truck?

A. This is a vehicle with power to all the wheels with considerably increased ground clearance and wide-profile tires. It can travel in the fields at speeds of about two km/hour, which is important in harvesting operations, and can travel at up to 75 km/hour on the highway. The Kutaisi Auto Plant will produce the new truck.

Speaking of specialized motor vehicles, the Urals Auto Plant will produce one such vehicle for the oil-field and gas-field operators.

Q. What new products are the private automobile production lines producing?

A. All the plants will modernize their products during the current Five-Year Plan. For example, the Gor'kovskiy Auto Plant is already producing a new model of the Volga GAZ-3102 mid-size car. A new model of the VAZ-2105 is coming off the line at Tol'yatti and another new model--the VAZ-2107--will be produced this year.

I should make special mention of a new trend in Soviet private auto construction--for the first time we are getting ready to produce cars with front wheel drive only. They do not have a universal shaft running to the rear wheels or a universal shaft tunnel, which makes the interior more comfortable and roomy. This is an important factor but not the primary consideration. The front wheel drive car is more stable on the road, particularly on slippery pavement, than the classic arrangement. And this is a question of traffic safety.

Front wheel drive cars will be built at the Volga, Moscow, and Zaporozh'ye Auto Plants ("Zhiguli," "Moskvich," and "Zaporozhets").

Q. What steps other than the introduction of diesel engines are being taken to improve the ecological cleanliness of the motor vehicles?

A. Along with dieselization we are converting some of the motor vehicle fleet to compressed gas, which makes it possible to reduce the engine contaminant emissions by a factor of three or four. Large-scale production of bottle-gas trucks and motor buses will be initiated in the new Five-Year Plan.

Still another approach to toxicity reduction is the development of the electromobile. For example, an experimental fleet of such vehicles developed on the base of motor vans produced by the Yerevan, Ul'yanovsk, and Riga Auto Plants is already in operation in Moscow. But these are only experiments; there are at present very few electrically powered vehicles.

Thanks to new carburetors of the "Ozon" type, for example, and several other design changes, the primary output of the auto plants (conventional motor vehicles) are now less "smoky".

Q. What other problems do you expect to resolve in the present Five-Year Plan?

A. I mentioned previously the reconstruction of the primary plants. But our industry is not developing in isolation from the other industries. Among other things, we produce bearings not only for our own use but also for other industries. And a different class of bearings is required in connection with the expansion of the various branches of the machinery construction industry. The technical level of such bearings will improve during the Five-Year Plan.

Another factor--in the last Five-Year Plan the plants producing electrical equipment for the automotive and tractor industry were re-equipped. These new capabilities will be expanded in the new Five-Year Plan and will make it possible for us to take a new step in improving control of the automotive vehicles and tractors.

Q. We have been talking about the plants, vehicles, and machine tools. But behind all this there are the people. What is being done for them, for each individual worker?

A. I shall cite only a single example. Prior to the initiation of construction of the Kama complex the population of the country town Naberezhnyye Chelny had reached 35,000 over a period of 350 years. Today this is a modern city with a population of 350,000. And this has taken only 10 years. Along with the auto plant there has been large-scale construction of housing, schools, hospitals, child care facilities, commercial buildings, and cultural and social facilities. Thus, in addition to our production plans we have serious plans for social development.

9576
CSO: 1829/300

KAZAKH OFFICIAL COMPLAINS OF ROADBUILDING EQUIPMENT PARTS SHORTAGES

Moscow EKONOMICHESKAYA GAZETA in Russian No 27, Jul 81 p 9

[Article by G. Litvinov, engineer of the Kazakh SSR Ministry of Motor Highway's Equipment Department: "According to Norms and In Practice"]

[Text] Highway construction is being carried out on a significant scale in Kazakhstan. We have at our disposal large quantities of roadbuilding equipment. However, the effectiveness of its use is being hampered by a shortage of spare parts. The problem of keeping rock crushing machines, upon which gravel making depends, supplied with spare parts is becoming a very serious problem.

The republic's Ministry of Motor Highways has 160 such machines. At the present time a difficult situation has occurred in their use because of a lack of crushing cones and plates.

It is almost impossible to get these replaceable parts in the territorial organs of the USSR Gossnab. But perhaps we have been asking for spare parts above the norms?

No. According to norms developed by the scientific-research and planning and design organizations of the Ministry of Construction, Road and Municipal Machine Building, for every year's use of a crushing and sorting machine four sets of moveable and stationary cones and seven sets of moveable and stationary plates are expected to be necessary for repairs.

The supply of cones for 1981 is only about 3 percent, and the supply of plates is only about 15 percent. The situation in supplies of spare parts for other crushing equipment is no better.

We would like to ask the officials in the Ministry of Construction, Road and Municipal Machine Building how the Ministry plans the production of spare parts. Don't they use output norms developed by the Ministry itself? And finally, it would be desirable to find out what practical measures are being taken to correct the situation.

CSO: 1800/321

DEVELOPMENT OF LENINGRAD'S HIGHWAY SYSTEM REVIEWED

Leningrad STROITEL'STVO I ARKHITEKTURA LENINGRADA in Russian No 5, May 81 pp 17-21

[Article by A. M. Belodedov, deputy director of the Main Motor Vehicle Inspectorate of the Main Administration for Internal Affairs of the Leningrad Oblast-City Executive Committee: "In Accord With the General Plan"]

[Text] In the "Basic Directions of Economic and Social Development of the USSR in 1981-1985 and for the Period to 1990" particular attention is devoted to the development of motor vehicle transport and the associated street traffic. The stated goal is to: "Improve the quality of street construction, repair, and maintenance with particular attention to improving traffic safety."

According to the statistics the number of motor vehicles in the city has doubled in the last decade. This reflects the tendency toward steady growth of the number of transport vehicles, not only those associated with the government enterprises and offices but also those used by individual owners. Here is one example. The residents of Leningrad are acquiring 12,000 to 14,000 passenger cars every year, and in all there are about 130,000 such vehicles in the city.

We might add that during the Tenth Five-Year Plan the overall street traffic volume in the city increased by 32 percent, while the length of the street and road network increased by eight percent. There is still another important index--the traffic density, which increased during this same period by 22 percent, that is, on the average by 4.5 percent a year. The traffic density increase is not uniform when viewed for the city as a whole.

Thus, significant growth of the traffic density is observed on several radial and east-west routes in the new-construction regions. These streets include Grazhdanskiy Prospekt, Piskarevskiy Prospekt, Narodnaya Ulitsa, Ivanovskaya Ulitsa, Prospekt Slavy, Bukharestskaya Ulitsa, and other routes.

The traffic density increase on the primary routes in the central part of the city, specifically on the Nevskiy, Kirovskiy, and Moskovskiy Prospekts, was slight (or the density did not increase at all). This is explained by the fact that in the "peak" hours the traffic handling capacity of these and many other streets in the central part of the city is essentially saturated.

On the whole the nature and dynamics of the distribution of the transport traffic flows did not change significantly during the last Five-Year Plan. The traffic load of the street and road network of the central part of the city is just as heavy as ever, with a significant percentage of truck traffic. Overloading of the central region remains one of the most important problems, which will be resolved in part after the introduction into operation of the first stage of the intra-city, ring-type throughway.

The dimensions of the traffic flows on most of the bridges across the Neva River and its branches are not increasing, since the bridges themselves and the approaches to them are not capable of carrying any more traffic. And some of the bridges are experiencing regular overloads. Among these are the Ushakovskiy and Kamennoostrovskiy Bridges, on which the traffic density exceeds the norm by 20 percent. The same can be said of the Bol'sheokhtinskiy (30 percent overload) and the Volodarskiy (10 percent overload) Bridges.

However the Aleksandr Nevskiy Bridge has a quite large handling capacity reserve, but the traffic density on this bridge is increasing slowly because of the fact that the approaches to the bridge are severely overloaded. The Tuchkovyy and Grenaderskiy Bridges and the Svoboda Bridge also can handle more traffic.

Evaluation of the adequacy of the present street and road network for handling the traffic volume in the city shows that the traffic load per kilometer of roadway has increased by 3.5 percent in the last five years. And the rate of growth in regard to this index is higher than in the preceding five-year period. This means that there is an increasing lag in the development of the city street and road network relative to its actual requirements.

Construction and reconstruction of the street and road system are going on continuously in Leningrad. However the scales of these operations are not adequate for the rapidly growing city. Analysis of the realized volumes in terms of capital investments and in physical terms shows that no more than 10-15 percent of what is needed is usually accomplished.

Meanwhile the number of traffic junctions where traffic "tieups" are regularly observed has now increased to 70. Only one thing can relieve this situation--more rapid construction of the required engineering structures. Unfortunately there was serious delay during the 1976-1980 period in development of the street and bridge system of the city as outlined by the general plan. Thus, of the 12 traffic interchanges planned for construction during the previous Five-Year Plan only seven were completed, and of the ten planned underground pedestrian tunnels only four were completed.

The general plan did not include several engineering structures which would have resolved the most important urban construction and traffic problems. These include the overpass at the intersection of Energetikov Prospekt and the railway tracks of the Okhta-Tovarnaya Station (an important element along the route of the arc-shaped throughway bypassing the central city regions); the overcrossing over the railway tracks of the Dacha Dolgorukova Station (exit from the Porokhov Region new-housing area to the center of the city); the overcrossing in the Zhdanovskiy Region at the intersection with the Sestroretskaya Railway Line (connecting the north-western region with the center of the city), and some other structures.

Particular mention should be made of the inadequate efforts and in our view the misdirected investment of funds in the construction of the bypass [dugovaya magistral] around the center of the city. Such complex and important elements of this throughway as the bridges over the Okkervil River at Zanevskiy Prospekt and the Okhta River at Energetikov Prospekt constructed respectively in October 1975 and November 1978, still are not having any significant result, since the other connecting elements of the system have not yet been constructed. The Kantemirovskiy Bridge, planned for introduction into service in 1982, will not have any practical effect until the approaches to the bridge are ready.

The program of street construction in the city is also considerably behind schedule. Thus, in the previous five-year period only 3.6 million square meters of the planned five million square meters were constructed.

The structure of the street network in certain regions remains incomplete, as before. We can cite as an example the southern part of the city, where there is a severe shortage of east-west traffic routes. The southern segment of the Central Bypass, including Leningrad Prospekt, Prospekt Slavy, Ivanovskaya Ulitsa and Narodnaya Ulitsa with the overcrossing over the tracks of the Moscow Railway Line (constructed in 1974) immediately began to operate at full capacity. Trucks constitute about 70 percent of the traffic here.

On the whole there has been no radical change in the structure of the organization of the traffic in the city during the past five years. Exceptions are several local measures carried out by Gosavtoinspektsiya [State Automotive Inspectorate] with the objective of improving the traffic conditions.

For example, truck traffic over the Ushakovskiy and Kamennoostrovskiy Bridges was forbidden. This is explained by the fact that the segment of the route including these bridges is practically the only arterial route connecting the north-western part of the city with the center and with the closest subway station--Petrogradskiy. This measure made it possible to improve significantly the operation of passenger traffic on this route.

What will the situation be in the next few years? The preliminary plans for development of the street and bridge system of Leningrad in the 1981-1985 period (on the one hand) reflect the need for elimination of the existing lag, identified by analysis of the realization of the preceding general plan for the organization of vehicular and pedestrian traffic, and (on the other hand) are directed toward solution of the most important social and urban construction problems.

The following approaches were adopted as the basic principles in developing the 1985 general plan:

--eliminate through traffic from the central region and the housing regions;

--improve the routes linking the new-housing construction regions with the center of the city;

--develop duplicate routes for the most important main routes and organize truck traffic along the most important primary routes into the city;

--increase the handling capacity of the primary street network and increase the traffic speeds;

--improve the safety of vehicular and pedestrian traffic.

The working variant of the plan for developing the city street and road network includes the most critical measures associated with the construction of public service lines and facilities and engineering structures that will ensure stabilization of the basic indexes and characteristics of the transport system at the modern level.

Plans include the construction of eight bridges, 15 interchanges, 12 underground pedestrian passageways, and several other important facilities.

Just as in the preceding years, the most important urban construction problems in the 11th Five-Year Plan will continue to be those of eliminating through (primarily truck) traffic from the central regions of the city. To this end the plan calls for completion by 1985 of the construction of a throughway bypassing the center of the city. Its route will lie along the north bank of the Obvodnyy Canal, Aleksandr Nevskiy Bridge, Zanevskiy Prospekt, Energetikov Prospekt, Annikov Prospekt, Kantemirovskaya Ulitsa, Kantemirovskiy Bridge, Medikov Prospekt, Karpovka Quay, and Levashovskiy Prospekt.

Much work will have to be done along the bypass route. It will be necessary to construct an overpass at the intersection of Energetikov Prospekt with the railway tracks of the Okhta-Tovarnaya Station; clear the way for continuation of Energetikov Prospekt near the Okhtinskiy Cemetery; reconstruct Kantemirovskaya Ulitsa so as to widen its roadway to six lanes, and reconstruct above this street the narrow and restrictive overcrossings at the intersections with the Zelenogorsk and Sosnovka railway lines; construct an overpass at the intersection of the Obvodnyy Canal quayside roads with Obukhovskaya Oborona Prospekt, and, finally, increase the size of the Moscow Railway Line overpasses. Introduction of the "arc" throughway into operation will have an appreciable economic effect. The overall magnitude of the traffic delays in the center of the city will be reduced by 3.2 million vehicle-hours per year when this throughway goes into operation.

A no less important problem is that of developing adequate primary routes connecting the new-construction regions with the city center. To this end the plan calls for extending Sizov Prospekt to Route No. 11 with the construction of a crossing over the Sestroretsk Railway Line; extending Grazhdanskiy Prospekt to the south with an overpass at the intersection with the railway tracks of the Kushelevka Station; connecting the Porokhov Region with the city center by extending Zanevskiy Prospekt with an overpass over the railway lines of the Dacha Dolgorukova Station; connecting Novo-Izmailovskiy Prospekt with Izmailovskiy Prospekt by constructing an overpass at the intersection with the northern half-ring.

The development of duplicate routes for the most important and most highly congested traffic arteries will relieve them of the heavy traffic flows. In this regard the following are proposed: using as a basis Shkol'naya Ulitsa and its extension, construct a street parallel to the Primorsk Highway; extend the segment of Dunayskiy Prospekt from the Kiev Highway to Vitebskiy Prospekt (which will relieve the load on Moskovskiy Prospekt); by connecting Telezhnaya Ulitsa and Goncharnaya Ulitsa with penetration of the block between them improve traffic on the eastern segment of Nevskiy Prospekt. Other backup routes with engineering structures will also be constructed.

Under the conditions of steady growth of the urban motor vehicle fleet, improvement of the handling capacity of the streets and the traffic speed on the streets becomes of tremendous importance. The solution of this problem is intimately associated with the formation of "continuous" traffic routes. Specifically, such routes are being created along the quayside road on the right bank of the Neva and the Bol'shaya Nevka. The construction of two-level interchanges at the exits from the Bol'sheokhtinskiy, Svoboda, and Ushakovkiy Bridges together with the structures already constructed on this route will open up possibilities for nonstop traffic flow from one end of the city to the other.

In addition the street traffic organization and regulation system must be improved. Here we should note, first of all, that the entry into operation of the circular bypass throughway will lead to considerable redistribution of the traffic flows with the objective of gradual limitation of entry into the city center of cargo trucks, the creation of conditions eliminating through truck traffic, on the one hand, and ensuring the possibility of cargo delivery to various enterprises and facilities, on the other hand.

An important role is assigned to further introduction of one-way traffic on the main city streets. Such a measure, which does not require significant capital expenditures, is widely used in the cities of the USSR, including Leningrad, where there are about 190 one-way streets. It should be noted that this has significant effect only on routes with quite high traffic density and with the presence of parallel streets acting as backup for one another. Conversion of the local streets to one-way traffic only complicates the situation on these streets.

In the near future we plan to organize one-way traffic on Telezhnaya Ulitsa and Goncharnaya Ulitsa (after opening up the route through the intervening block) and along Nevskiy Prospekt on the segment from Vosstaniye Square to Aleksandr Nevskiy Square with retention of the trolley and motor-bus lanes; along Gogol' Ulitsa to Isaakievskiy Square and Gertzen Ulitsa in the opposite direction while retaining the previous public transport lanes along Primorskiy Prospekt and Shkol'naya Ulitsa. Traffic on some ten other streets will also be converted to one-way operation.

Reconstruction of certain routes and junctions will be undertaken with the objective of increasing the handling capacity and improving the safety of both vehicular and pedestrian traffic. Thus, in connection with the introduction into operation of the new highway route to Leningrad from Murmansk provision has been made for reconstruction of the square at the intersection with Dal'nevostochnyy Prospekt, where the ring-type islands will be eliminated; provision along Narodnaya Ulitsa of "pockets" for trolley stops and widening of the roadway of Ivanovskaya Ulitsa. Komsomolskaya Square and Polyustrovskiy Prospekt will be subjected to considerable reconstruction.

Several measures associated with improving pedestrian safety are planned for the 1981-1985 period. The most significant of these measures are associated with the construction of underground passageways at the junctions that are most hazardous from the viewpoint of traffic accidents. Such passageways will be constructed under Moskovskiy Prospekt at the Tekhnologicheskiy Institut Subway Station, at Aleksandr Nevskiy Square, at the Muzhestvo-Square, Politekhnicheskaya, and the Vosstaniye-square subway stations, and at other locations.

The central planted area on Zhelyabova Ulitsa will be eliminated and the sidewalks will be widened for the convenience of pedestrians. The width of the sidewalks on Bol'shoy Prospekt on the Petrogradsk side will also be increased. As before, "penetration" of building corners is being continued in the areas of heaviest pedestrian traffic.

An effective means for regulating traffic and reducing street traffic accidents is the marking of the asphalt pavement with safety stripes. These stripes must be highly visible, simple, and easily understood by the driver and the pedestrian, and also harmonious, that is, they should not detract from the general appearance of the square, street, or avenue. In addition a purely operational approach is taken--the stripes should be resistant to wear.

In recent years we have worked together with the specialists in the department of chemical technology of plastics of the Technological Institute to develop new marking materials. The result has been the development of the "Porgamin" thermoplastic, which differs from the paints now used in the USSR in improved strength, whiteness, and also simplicity of preparation and low cost. And its service life has been increased from three to five years.

At the present time work is continuing to develop a still better striping material--adhesive tape. It will have still higher coefficient of friction and strength and, most important of all, will not require the use of mechanical means for its application to the pavement. Tests are now being conducted of this material.

Much attention is being devoted to highway information. The timeliness and clarity of this information does much to increase the handling capacity of the main routes. All the primary traffic routes are equipped with signs based on individual design, taking into account the specific situation and location. Work is continuing to improve the information network--the existing signs are being equipped with lighting and "How to Drive Around Leningrad" placards are being installed with indication of the location of hotels, filling stations, repair stations, first aid stations, and directions to the latter.

Arched supports for mounting the signs and traffic lights have been developed. The signals and signs are now easily visible to both the pedestrians and the drivers and are not hidden by large trucks.

Much has been done--much still remains to be done. Successful resolution of the vehicular traffic problem depends on the efforts of many organizations and bureaus. We now have a clear and visible plan for the solution of this problem--the "General Plan for the Development of the Transport System of Leningrad for 1981-1985," realization of which will ensure the required social and urban construction effect in accordance with the requirements of the 26th CPSU Congress.

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9376
CSO: 1829/305

MOTOR VEHICLE

SUBJECT OF MOTOR TRANSPORT INTO MANGYSHLAK TPK REVIEWED

Alma Ata KAZAKHSTANSKAYA PRAVDA in Russian 1 Jul 81 p 2

[Article by G. Dil'dyayev, city of Shevchenko: "On the Mangyshlak Roads"]

> [Text] We must not underestimate all that has been done and is being done by the motor vehicle workers of Mangyshlak for the creation of a large industrial region on the peninsula. Not long ago when there were no runways here and the railroad branch line did not yet extend into the desert region, the first tons of freight were delivered to uninhabited places by the drivers of motor vehicles. The absolute lack of roads, the dust storms, the thirst--all these were overcome by the first ones to penetrate this area.
>
> Today too one cannot conceive of this region without the strenuous labor of the motor transport workers. With the undeveloped network of railroads, it falls to their lot to handle the bulk of the shipments of national economic goods. Comrade T. Dzhumagulo, the chief of the Mangyshlakskaya Oblast Production Motor Transport Administration, describes for our correspondent the nature of this work and problems involved in the development of the main transport of the territorial production complex.

Having accomplished extensive development of socialist competition for a worthy welcome to the 26th CPSU Congress, the collectives of all the nine motor transport enterprises of our administration have successfully completed the assignments of the 10th Five-Year Plan. The plan for shipment of goods was fulfilled ahead of schedule by 20 October 1980. Transported over and above the plan were 2.6 million tons of freight and 3.2 million passengers. It should be noted also that during the five-year period the volume of transport work more than doubled.

A good start has been made by the motor vehicle operators since the beginning of the current year. They have fulfilled the six-month plans for all the basic indicators. These successes were made possible by the important organizational and political education work in the labor collectives and the dedicated labor of the many thousands of members of the detachment of motor vehicle workers of Mangyshlak.

Undoubtedly a positive role was played by the technical reequipping of our ATP [motor transport regiments], improvement of the transport process, and efficient use of the rolling stock. The average carrying capacity of the transport fleet rose from 4 to 6.4 tons. Nearly 1,700 new trucks and buses were obtained.

At the same time, the accelerated development of the economics of the region made it necessary for us to obtain a further increase in the capacities of the motor transport. What is be done to accomplish this task?

Coming into widespread usage, first of all, are centralized shipments which enable us to carry out efficient planning of the work of the rolling stock, to completely free the freight recipients from worry about the goods shipment, and to reduce the layover time for loading and unloading by mechanization of these processes. The proportion of centralized shipments now compromises 72 percent of the total volume as compared to 60 percent at the beginning of 1976. Good results have been obtained from the use of large-capacity motor vehicle trains and the widespread use of trailers.

The introduction of the collective forms of work has significantly increased the effectiveness of the motor transport operation. Whereas by the end of the Ninth Five-Year Plan we had not a single contract brigade, now there are 22 collectives operating by this method. Last year alone the contract brigades, which had available to them 13 percent of the total number of trucks, hauled 26 percent of the freight and brought in 34 percent of the profit of the administration as a whole.

The driver brigade of the ATP Mangyshlaktransagenstvo [Mangyshlak Transport Agency], headed by communist Nikolay Aleksandrovich Zabugoy, was one of the first organizations in Mangyshlak to begin working by the brigade contract method. The collective has achieved outstanding success year after year. Last year its transport per listed motor vehicle ton amounted to 74.403 ton-kilometers, which is 1.6 more than the figure for the enterprise as a whole. Deserving of praise is the drivers' collective of the brigade of Isa Spanov from the Beyneuskiy ATP. Working on the construction of the Shevchenko-Kalamkas motor road, it obtained the highest level of coefficient of use of the truck fleet--0.73.

Active support is being provided by the cooperation lent by the transport workers of Leningrad and Odessa. For example, the Shevchenko and Fort Shevchenko ATP's are working in close cooperation with the railroad station of Mangyshlak and the maritime port of Bautino.

Undergoing development is such an important undertaking as the transport expeditionary service for the population, a service which bears directly on the everyday life of the people. The ATP Mangyshlaktransagenstvo, established a year ago, now has 28 agencies and receiving points. Last year the enterprise provided 240,000 rubles of services for the population.

We are focusing the closest attention on the passenger transport. Buses service 16 city, 11 intercity and 15 special routes. The daily runs encompass nearly 2,300 trips and accommodate 125,000 passengers. In the summer additional routes are opened up to the workers' resort areas. Despite the extremely scattered locations of the populated points in the territory of the oblast, many of them are connected among themselves by bus transportation. In the past five years the volume of passenger transport increased by 98 percent, which is more than the increase prescribed in the plan assignments.

Obviously all this work would be paralyzed if we did not set up our own base and did not organize motor vehicle repair production. All the motor vehicle enterprises have built shops and specialized posts to provide diagnostic services for the repair and technical maintenance of the vehicles.

We have many workers proficient in their trade who, by competent use of the reserves entailed in the design of domestic motor vehicles, have greatly exceeded the normative operational periods without capital repair. Among these are Novokuznetsk ATP driver A. Aminov, PATP [field motor transport regiment] drivers A. Prosvirin and V. Afonin, Hero of Socialist Labor T. Kazbekov from the Zhetybay ATP, M. Tuyyebayev from the Fort Shevchenko ATP, and Zh. Zhuzbayev from the Yeraliyev ATP.

One of the chief tasks currently being fulfilled by the workers of the oblast is accelerated excavation of oil wells on Buzachi peninsula, a task assigned by the]6th CPSU Congress. A great deal has also been done for this project by the motor vehicle operators. Evidence of this is the awarding to the 10 best drivers of Mangyshlak of orders and medals which they received for high indicators in the work of developing the new oil and gas fields of the region.

The motor vehicle operators have been working with particular energy on the construction of the Shevchenko-Karzhanbas-Kalamkas road and on the building of a dam to protect the oil wells from the inundating waters of the Caspian. Assigned to this task is the bulk of the rolling stock of the motor vehicle enterprises. In April there was established here a separately allocated consolidated motor vehicle column consisting of more than 100 new large KamaAZ (Kama Motor Vehicle Plant] trucks. For work in the consolidated column we carried out organized recruitment of approximately 200 drivers over and above the republic limits and we organized the labor of these workers according to the shift method.

Despite the fulfillment of the basic indicators of the plan, the 10th Five-Year Plan showed a reduction in an important technical-economic indicator--the coefficient of use of the operational inventory (KIP). The basic reasons were: a sharp increase in the volume of shipments, receipt of a large volume of new equipment (KamAZ and KrAZ motor vehicles) which had not been operated previously, the lack of specialized bases for the repair and servicing of this equipment, and the acute shortage of driver personnel, especially for the new types of vehicles. In addition, in the last three years the working conditions have changed. Because of the construction of a motor road to the new oil wells, a large proportion of the motor vehicle fleet is operating in isolation from the main base and with a lack of good roads and a repair base at the sites. Equipment wears out quickly here and machine units and assemblies go out of order.

Because of this and because of the fact that in the near future we will be receiving a great many large trucks, there is an urgent need for the setting up on Mangyshlak of a plant for the repair of motor vehicles. As it is, we are compelled to go thousands of kilometers from the peninsula for capital repair of the assemblies. Need we say that this is very expensive?

We of course have internal reserves and we must and will work persistently to improve the technical-economic indicators and, in particular, to increase the production of motor vehicles for the line, to reduce the number of runs without load, to cut down the idle time, and to make more extensive use of the progressive methods of transport.

There are serious and crucial tasks facing the administrative collective in 1981 and in the 11th Five-Year Plan as a whole. By the end of the five-year plan freight turnover should increase 1.4-fold and freight shipments will be replenished with nearly 1,500 new vehicles.

The motor vehicle operators of Mangyshlak are applying all their strength to the successful fulfillment of the plans and socialist obligations and to the making thereby of a worthy contribution to the further development of the economics of industrial Mangyshlak, as mapped out by the decisions of the 26th CPSU Congress.

7962
CSO: 1800/605

OCEAN AND RIVER

DEVELOPMENT OF SEA TRANSPORT

Moscow EKONOMICHESKAYA GAZETA in Russian No 26, Jun 81 p 2

[Article: "The Development of Sea Transport"]

[Text] The Soviet Union is currently one of the world's leading sea powers in the size of its merchant fleet and in the development of its ports and ship repair industries. This type of transportation has grown in importance because of the great savings involved in shipping the widest assortment of goods to the country's coastal regions by sea. Sea transportation is a highly profitable sector of the national economy. The labor collectives of seamen, dockers, and ship repairers are contributing significantly to opening up the natural resources of Siberia, the North, and the Far East.

The merchant fleet had an important role in widening the foreign economic relationships of the USSR. It handles the main portion of export-import shipments in intercontinental trade. It now is responsible for more than one half of the entire foreign trade freight turnover of the country. Merchant fleet ships visited 1,250 ports in 124 countries of the world in 1980 alone.

A large step was taken to strengthen the material and technical base of sea transport and to increase the efficiency of its operation during the 10th five-year plan. The volume of freight shipments increased 15.1 percent and loading and unloading operations by 11 percent.

New ships with a deadweight(the total weight of the cargo taken on by the ship) of 4.2 million tons joined the transport fleet. At the end of 1980 the total deadweight increased by 21.7 percent compared with 1975. Trans-shipping complexes with a capacity of 44.5 million tons a year were put into operation in the ports.

Arctic shipping, with the use of atomic icebreakers, is being improved. In 1979 and 1980 the western sector of the Northern Sea Route from Murmansk to Dudinka was turned into a highway for practically year-round navigation.

In the foreign shipping sphere, a large amount of work has been done on transporting freight to Vietnam, Cuba, the ports of the GDR, Poland, Bulgaria, Czechoslovakia, and the other socialist countries in the last five-year plan. USSR foreign trade contracts with dozens of developing and industrially-developed capitalist states increased shipping volumes.

The Baltic Steamship Company, where the fleet work efficiency grew by 31 percent in 1976-1980, is rightly considered to be the leader among the 17 Minmorflot [Ministry of the Maritime Fleet] steamship companies. Its collective completed the plan of the 10th five-year plan in August 1980. Comrade L. I. Brezhnev congratulated the steamship company's workers on this success.

Key Tasks of the Current Five-Year Plan--New large tasks have been proposed for the sea transport workers in the 11th five-year plan in accordance with the decisions of the 26th Party Congress. They intend to increase freight turnover by 8-9 percent during the years 1981-1985.

The responsibility of the industry's workers is to achieve a more effective utilization of the fixed production capital and the material and laboring resources, and to obtain the maximum return on investments.

The growth in the operational effectiveness of the maritime fleet now and in the future is determined by the level and scope of the development of transportation and technical systems. This means primarily a broadening of shipping--package, container, on ships with horizontal loading, ferry, lighter-carrier. They permit a significant increase in the carrying capacity of the fleet , a decrease in the mooring of ships in ports and cargo delivery times, and a significant decrease in packing and wrapping expenses. Resources to fundamentally change the conditions and character of the work of the seamen and dockers are being created.

A characteristic feature in the development of the transport fleet is an increase in the proportion of specialized dry-cargo ships. If the percentage of dry-cargo ships was 59.1 at the end of 1980, then it will grow to 63.1 by the end of 1985.

The fleet will be augmented by approximately 250 ships with a total deadweight of 3.2 million tons in five years. About 170 ships will join the dry-cargo fleet. Among them, the fleet will receive 28 specialized unique ice-breaker transport ships to provide steady, year-round navigation in the western region of the Arctic right up to the Vil'kitskiy Straits and for the growing volumes of shipments to other regions of the North and Far East. There will also be dual-purpose lighter carriers--in the seasonal navigation period they will be used in coastal shipping in the North and Far East and at other times in export-import shipping. The first lighter carrier of domestic construction, the "Aleksey Kosygin," was laid by the Kherson shipbuilders on the opening day of the 26th CPSU Congress. It will supplement the fleet of the Fareastern Steamship Company in 1983.

During the 11th five-year plan the construction of nuclear-powered lighter carriers with increased maneuverability through ice will begin for the Murmansk Steamship Company. Still another Hercules--the Rossiya"--will enter the nuclear-powered icebreaker fleet.

They also plan to enlarge the fleet mainly with specialized ships both according to designs developed in the 10th five-year plan and also constructed according to new designs. There are ships with horizontal loading, container carriers, ferries, refrigerator ships, lumber carriers, tankers, and combined ship-bulk tankers.

New "Georg Ots" type passenger ships, hydrofoils, and passenger boats of various tonnage for coastal navigation will leave the shipyards.

Table 1. Volume of Loading and Unloading Operations in Sea Ports (1970 = 100 percent)

1970	100
1975	129
1980	144.7
1985	156.7

The Development of a Shore Base--In the plans for developing a shore base the main stress has been on the improvement of the carrying capacity of ports through technical retooling and renovation, the construction of new specialized trans-shipping complexes, the development of ship repair yards, and the construction of projects for total fleet servicing. Special attention is being paid in capital construction to eliminating intrasectorial disproportions and bottlenecks in order to increase the intensity of fleet processing, and to decrease, in every possible way, mooring times in ports and at ship repair yards.

In the Northern basin the construction of wharves will be completed at Murmansk and Arkhangel'sk for trans-shipping the cargo of the Noril'sk Mining and Metallurgical Combine. They intend to construct a facility for receiving and servicing lighters in Kandalaksha and to renovate the oil base at Dikson port.

Plans call for the completion of the construction of complexes to transfer containers, wheeled equipment, and other cargo on ships with horizontal loading in Riga port. In the Baltic basin the deep-water wharves in the port of Tallinn will also be renovated. The plan calls for the construction of wharves for processing heavy-weight ships, a sea station, and a tunneling junction on Kanonerskiy Island in the port of Leningrad.

In the Azov-Black Sea basin they are completing the construction of trans-shipment complexes for loading cargo in the ports of Yuzhnyy(ore, coal), Novorossiysk(grain), in the region of Massandra(sand, gravel). A container area in the port of Il'ichevsk, wharves for the Karantinnyy breakwater, and a ballast water cleaning station in the port of Odessa will be widened or renovated. The shore facility of the Danube Steamship Company will be further developed.

In the Fareastern basin they plan to construct container complexes in the ports of Vostochnyy and Vladivostok and to finish the construction of container terminals in the ports of Magadan and Petropavlovsk-Kamchatskiy.

Of the total amount of assets allocated to production-type construction and installation work, more than two-thirds is directed at port development.

Including projected ship procurements and the write-off of truly obsolete tonnage which has completed the standard operational time periods, the deadweight of the transport fleet at the end of 1985 will amount to approximately 19.2 million tons as opposed to 18.5 million tons at the beginning of this five-year plan.

The cost of a deadweight ton in the current five-year plan, with the adopted fleet enlargement pattern, will almost double in comparison with the last five-year plan. Therefore it is important to work up and, above all, carry out a complex of measures to maintain the necessary level of return on investment. It is necessary to intensify the utilization of each ship in every possible way. This is the number one question in the activities not only of the seamen, but also of the port and ship repair enterprise workers and the builders.

Thus, by improving operations, they plan to increase dry-cargo ship productivity by 7.4 percent, and the growth of the gross intensity of its port processing by 17.1 percent. By increasing labor productivity they must provide a 73.6 percent growth in transport volume and a 39.8 percent increase in the volume of loading and unloading operations. The use of the ship repair enterprise reserves will permit a 19.6 percent rise in labor productivity.

The tasks of the five-year plan are very intensive, but fully practical. The task consists of introducing advanced labor and management methods and continuous port, fleet and transport center work plan schedules everywhere. This new form of interaction by associated types of transportation at junctions, approved by the CPSU Central Committee, was born in Leningrad. The labor cooperation of the transportation workers yields all the more tangible results. Some 38 sea ports are currently operating in accordance with the experience of the Leningraders. From the time that Minmorflot alone switched to interconnected continuous plan schedules, there was an economic effect of more than 20 million rubles.

The sea transport workers are competing with patriotic enthusiasm for the successful fulfillment of the tasks of the current year and the entire five-year plan. According to the 1981 plan it is necessary to increase shipping volumes, foreign trade income, and the profit from basic activities. The productivity of the dry-cargo fleet must grow by 3.4 percent. It is necessary to deliver fully and in a timely fashion all cargo to the remote regions during the limited Arctic navigational period. It is necessary to transport a large amount of oil and oil products in the Caspian basin. Minmorflot ships are transporting traditional cargo--agglomerate, ore, coal, oil products, and others--on the Black Sea, the Azov, the Danube, and the Baltic. Increased attention is being paid in all sea basins to agricultural cargo shipments. No special changes are taking place in the make-up and geography of foreign trade shipments.

The collectives--the pioneers of the all-union socialist competition in the first year of the five-year plan: the Baltic Steamship Company, the Novorossiysk port, the crews of the ships "Vladimir Il'ich," "Marshal Konev," "Elektrostal'," and "Nikolay Cherkasov"--are leading the struggle to achieve the projected gains.

All of the sector's workers have supported the initiative of the leaders: "the work of the transport conveyor--high efficiency and quality." The adopted socialist commitments are being backed up by work. The five-month foreign shipping plan has been overfulfilled by two percent, the coastwise trade by four, and loading and unloading operations by four percent. All of the steamship companies fulfilled their five-month tasks.

However, large shortcomings still remain in the management of the operational process. Fleet downtimes, including the line and specialized fleets, are not decreasing. The mooring time of ships has grown. The work schedule of the fleet on the lines is not being sustained. The line ships in the ports of Riga, Odessa, Ventspils, Zhdanov, Klaypeda and several others are not being processed in a timely manner. The steamship companies are weakly controlling the efficiency of utilization of the stock of containers, and also their repair in the ports. Serious omissions are being tolerated in managing the labor of the port workers.

It is necessary to improve in every way possible the operation of the fleet and ports--an important link in the transport system of the country.

8524
CSO: 1829/292

VEGETABLE NAVIGATION SEASON

Moscow VODNYY TRANSPORT in Russian 14 Jul 81 p 1

[Article by I. Ogibin, chief of the Containerization and Package Shipping Department of the MRF: "The Eve of the Vegetable Navigation Season"]

[Text] Steady warm dry weather is promoting the rapid ripening of vegetable and melon produce at the plantations of the lower Volga region. The vegetable conveyor between the Astrakhan' industrial agricultural complex--the main supplier of tomatoes and watermelons to the Russian Federation--and the numerous industrial centers of the country will become operational soon. A major component of this conveyor is river transport whose share of the shipments is 70 percent of the tomatoes and 30 percent of the watermelons shipped by the Astrakhan' farmers.

The Russian Federation river transport workers have always considered the harvest to be their main cargo, understanding well that the amount and quality of the produce which goes to the consumer depend, to a significant degree, on their labor. It should be frankly stated that the 1981 navigation season has one characteristic--the handing over of vegetables for river fleet transportation is later.

If the first ships with tomatoes were dispatched from the points of the Volga-Akhtubinskaya floodlands in the first ten days of July in 1979 and 1980, then this year it is expected that the intensive shipping of vegetables will begin in the second half of July. This is why an efficient water transport conveyor rhythm must be maintained from the beginning of the vegetable navigation season. All of the steamship companies which must participate in carrying tomatoes and watermelons have finished preparing their fleets for these shipments. More than 200 transport ships will go out to the vegetable lines during the current navigation season. Among them are 142 600-700 ton motor vessels, 10 motorized catamarans, "Bakhtemir" type container-carrying ships, "Okskiy" type cargo vessels, and a number of other kinds of ships. The crews of these ships must consider their participation in the transportation of vegetable and melon produce to be a great trust.

An analysis of the course of last year's vegetable harvest work shows that we have large unused resources and reserves. Let us dwell on only several of them. The main reserve is for increasing the transportation tonnage capacity--increasing its loading. Thus, in 1980 the entire vegetable fleet underloading was 30,000 tons in comparison with established norms. This underloading was tolerated when the total vegetable and melon shipments from the Astrakhanskaya Oblast amounted to 210,000 tons. An equally important reserve is the liquidation of above-the-plan delays which, unfortunately, continue to remain very high. Last year alone at the shipment points the fleet had an above-the-plan delay estimated at more than half a million ton hours. The fleet also was not processed in the best way at the destination points where unproductive downtimes amounted to 0.6 million ton hours.

These data once again speak to the necessity of putting reserves into operation. The freight shippers and recipients, along with the transport workers, must do this for the effective utilization of the fleet depends, to a significant degree, upon their contribution. It is necessary right from the very beginning of the vegetable and melon shipments to conduct a decisive battle to maintain the established norms for tonnage loading, being guided strictly by the "specifications for loading and placing on ships watermelons and tomatoes transportable in tray boxes, trays, and boxes" developed by TsNIIEVT/Central Scientific Research Institute of Economics and Operation of Water Transportation/ and approved by the leadership of the RSFSR Minrechflot/Ministry of the River Fleet/.

This is not the last role assigned to TsNIIEVT in this business--the job of the institute is to not only develop the indicated specifications but also to put them into practical operation. It is intended that the TsNIIEVT workers will most actively participate in the introduction of new, progressive equipment for shipping tomatoes and watermelons which will be their practical contribution to the total job of providing for the timely and complete shipment of vegetable and melon produce. The port workers must be especially concerned about questions concerning the organization of cargo work both at their own wharves and at the wharves under the jurisdiction of the shippers' ministries and departments.

The collective of the North Moscow port has acquired good experience. Here using the methods of the Leningrad transport workers by coordinated work with the motor vehicle drivers of Glavmosavtotrans/Main Administration of Motor Vehicle Transportation of the Moscow Gorispolkom/ and with the fruit and vegetable facilities of Glavmosplodoovoshchprom/Main Administration of the Moscow Fruit and Vegetable Industry/, they have introduced progressive technological processes for unloading ships with fruits and vegetables by a direct ship-motor vehicle variation and in the 1980 navigation season they achieved record productivity, exceeding by 2-3 times the results of the South Moscow, Leningrad, and Gor'kiy ports for unloading vegetable and melon produce.

The advanced experience of the North Moscow port must be widely disseminated in all transport centers and steamship company managers and specialists of the main port administration of Minrechflot must help in continuing along this path.

The Volga Associated Steamship Company certainly must be especially concerned about questions on fundamentally improving the processing of the fleet at the wharves of clients. The poor organization of loading vegetables and watermelons at the shipping points of the lower Volga region cannot be tolerated during the current navigation season. It is necessary to get rid of practices, which had their place in the past, when loading was done only during the daylight hours. The transport fleet must be loaded around the clock, seven days a week, and this is the direct responsibility of the organizations included within the system composed of the RSFSR Minsel'khoz/Ministry of Agriculture/, RSFSR Minplodoovoshchkhoz/Ministry of Fruit and Vegetable Agriculture/, and the RSFSR Potrebsoyuz [Union of Consumer Cooperatives].

In turn, the Volga Associated Steamship Company and the Astrakhan' and Volgograd ports must strengthen control over the processing of the tonnage and must more actively involve the Soviet and party organs of the oblast and rayons and the national control organs in this work.

One should pay special attention to the problem of container shipments of fruits and vegetables. Much has been said about this exceptionally real problem and the improvements achieved in recent years in the area of the containerization of melon produce inspire confidence for the future. Nevertheless, objectively evaluating the situation with the change to the container method for shipping vegetables and watermelons, let us say frankly: the work which has been conducted and the scope of agricultural produce being shipped by containerization do not answer today's requirements. A solution to the problem of fully switching to container shipping for watermelons cannot be delayed. Last year alone about 50 percent of melons were packed in containers and the remaining ones were shipped in bulk. If the watermelons shipped in containers were carried to their destination points without damage, then the recipients of the bulk shipments lost a considerable amount of produce.

The primary task facing the river fleet workers is to switch to the container transportation of melon crops delivered to Moscow, Leningrad, Perm', Gor'kiy, and Ufa during the 1981 navigation season, keeping in mind that it is necessary to switch fully to the container shipment of watermelons to all of the river consumption points by 1982. All of the foundations exist for this. All that is necessary is for RSFSR Minsel'khoz, RSFSR Mintorg/Ministry of Trade/, RSFSR Potrebsoyuz, and the newly created RSFSR Ministry of Fruits and Vegetables to display maximum attention to the new progressive method of delivering melon produce.

However, it is impossible not to be surprised by the position taken by these ministries and departments on the question of introducing containers for shipping tomatoes. In spite of the effort of the RSFSR Minrechflot on speeding up the changeover to the delivery of highly perishable crops in type TKB-90U containers, the production of these containers, suitable for shipping tomatoes, watermelons, potatoes and various types of vegetables, has still not been started and the experimental industrial transportation of tomatoes has been postponed indefinitely. It is hoped that the RSFSR Minplodoovoshchkhoz and the USSR Minplodoovoshchkhoz, responsible for organizing container shipments of vegetables, will truly concern themselves with solving the problem of the containerization of tomatoes and watermelons, which will assist in improving the preservation of produce on the entire route from field to store.

The busy time is now setting in for the farmers and all participants of the united food conveyor. Setting in motion the business-like cooperation of the subcontractors, it is important to be concerned that everything that has been nurtured and picked by the hands of the field laborers will regularly be received by the customers in good condition.

8524
CSO: 1829/292-A

OCEAN AND RIVER

'MOLODEZHNYY'--FIRST OF A NEW FERRY SERIES

Moscow MORSKOY FLOT in Russian No 5, May 81 pp 42-44

/Article by V. Olesinskiy, chief of the Technical Division of the Black Sea Steamship Company, and B. Levi, chief designer of the Black Sea TsPKB (Central Planning and Design Bureau): "TheDiesel-Powered Passenger Ship 'Molodezhnyy'"]

/Text/ The diesel ship "Molodezhnyy" is the flagship of a series of ferries being built by the Il'ichevsk SRZ (Drydock) in accordance with a design by the Black Sea TsRKD (Central Planning and Design Bureau). Creation of this series of ships was brought about by the large volume of hauls in Sevastopol' Bay. By 1980 they had reached 12 million passengers a year with a trend toward further growth.

This ferry's passenger capacity (250 persons) and its principal dimensions were determined as a result of analyzing passenger flows on the most typical operational directions, the requiredfrequency of ships' departures, as well as certain limitations connected with existing wharves.

PRINCIPAL SHIP'S CHARACTERISTICS

Length	
Maximum	28.7 m
By KVL (Design Waterline)	27.0 m
Width	
Maximum (without side attachments)	6.0 m
By KVL (Design Waterline)	5.3 m
Height of side	2.5 m
Draft clearance	1.7 m
Water displacement	85.3 t
Deadweight	21.3 t

The rated speed of 11.5 knots ensures the necessary reserve for maintaining an operating speed of approximately 10 knots, which is permitted in port waters with intensive traffic. On the Grafskaya Landing--Severnaya crossing such a speed ensures a crossing time of 6--7 minutes.

Taking into consideration the brevity of the trips as well as the requirements for economizing on transport means servicing the crossings, approximately 48 percent of the passengers are provided with seats on the "Molodezhnyy"-type ferry. The density of the remaining persons on the available sections of the deck (4--6 persons per sq. m) does not exceed the norms which have been established for overland types of urban transportation.

The ferry's engine room has been shifted relatively more toward the stern than is the case on other coastal passenger ships (the "Raduga" and "Aleksandr Grin"), and this allows better use to be made of the deck area for equipping the roomy salon outside of the zone with high noise levels. Also separate from the salon and situated in the stern is the deckhouse, where the entrance compartments, wheelhouse, engine sections, and exhaust pipes are located. The considerable shift of the engine room back toward the stern was achieved by a complex of measures provided by the design, in particular, by gondola-type structures in the bottom part of the engine room; the bearings and other drive-shaft components have been installed here.

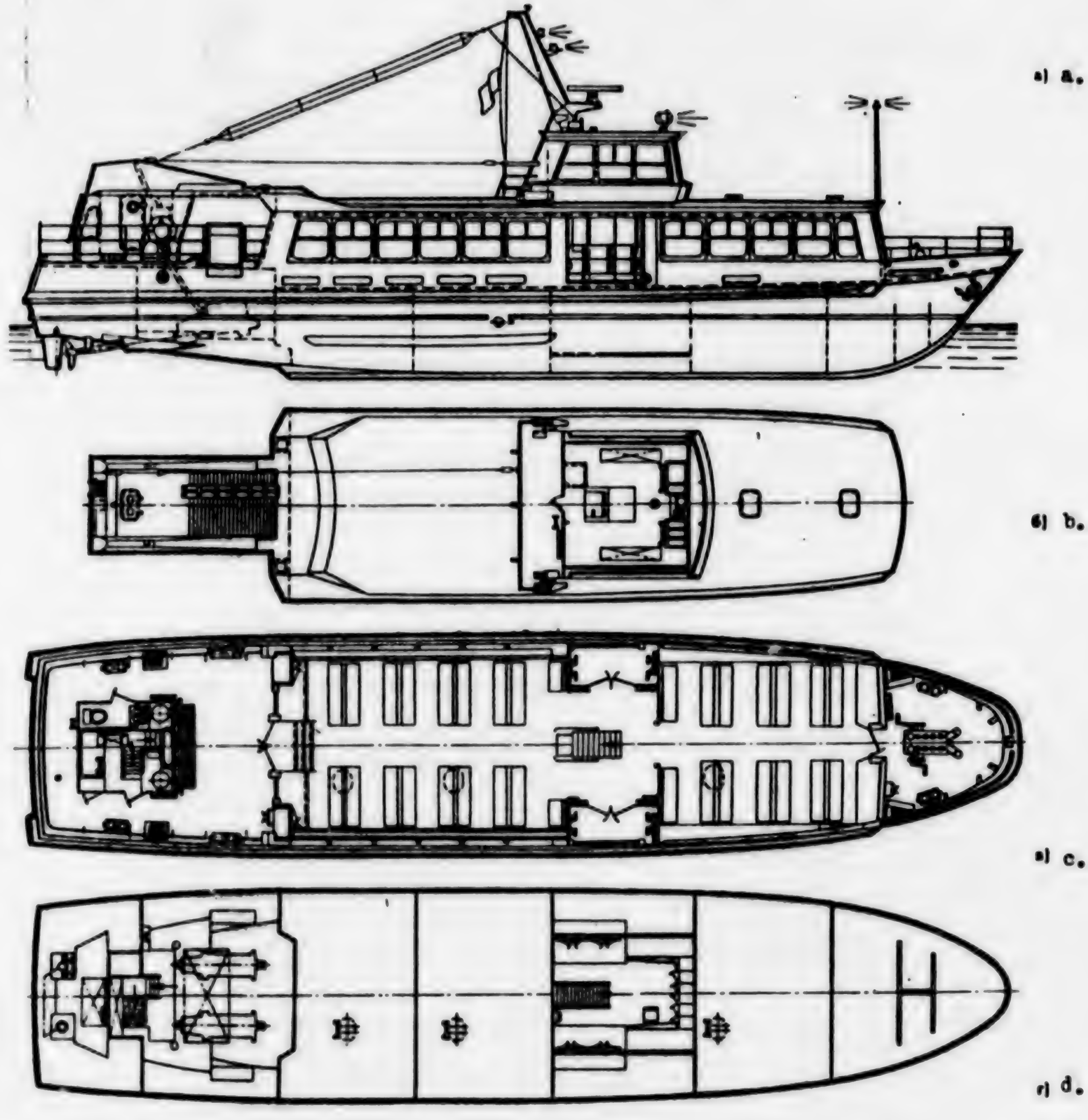
The principal embarkation areas have been situated along the sides of the midship part of the ferry. Also located in this area is the apparatus for tying up the ship to a wharf by means of hawsers, and this simplifies the work of the service personnel. Increased safety and coordination of these operations is facilitated by the possibility of observing the principal embarkation areas from the wheelhouse through inspection windows set into the floor. When only one central exit is used with a door aperture of 1.15 m, the time for disembarking all passengers (250 persons) amounts to approximately 3 minutes.

In order to receive on board passengers with baby-carriages, bicycles, mopeds, and motor-scooters, in addition to the basic embarkation area, there are openings 0.9 m wide on the stern raised deck along both sides.

The number and arrangement of the waterproof bulkheads, the heighth of the above-water board, and, principally, its significant arrangement, ensure the ferry's unsinkability and the proper emergency stability under conditions of any two adjacent compartments being flooded, even though the classification societies, and, in particular, the USSR Registry, permit a one-section standard for analogous types of vessels.

This increased level of unsinkability, which was put into the ferry's design, is explained by the insufficient effectiveness of the collective lifesaving means on low-tonnage ships with considerable passenger capacities, inasmuch as the ship's modest dimensions present extremely rigid and often unfulfillable requirements for the time of placing people into the lifeboats or rafts in case of an emergency situation.

In addition to solving the problems connected with unsinkability, the significant arrangement of the sides in conjunction with the relatively modest width of the hull along the design waterline allowed us to obtain satisfactory characteristics of vessel stability at large degrees of listing in an undamaged condition without any extraordinary raising of the transverse initial metacentric heighth. Increasing the above-water volume and stability at large degrees of listing has also been facilitated by raising the deck in the stern section. At the same time, this



GENERAL PLAN OF THE SHIP

a--Side view; b--Salon roof; c --Deck plan; d --Plan of the hull compartments provides the necessary heighth for the engine room.

The ferry's hull and superstructure are made of ordinary carbon steel. The thickness of the exterior sheathing is 5--7 mm, while the thickness of the deck flooring is 5 mm. In order to simplify the manufacture and assembly of the parts of the hull, which has a large keel factor, the system of the transverse assembly is executed without the traditional flooring: the rib arms are brought to the vertical keel and are supported by additional stringers. The design of the keel beam has also been simplified.

Four openings, each 95 mm in diameter, provided for in the extra-thick plates of arms extending over the deck, allow the ship to be raised for inspection and repair without having recourse to relatively expensive drydocking.

The ferry is equipped with two suspended, balanced rudders with a total area of 1.0 sq. m. Their resetting is provided by the RG 0.25 P hydraulic steering mechanism.

In order to lift the stationary anchors weighing 200 kg each, the manual windlass has been further equipped with a hydraulic drive. Drives of this type are widely utilized in passenger vessels engaging in coastal navigation ("Raduga" and "Aleksandr Grin").

The electric power plant is made of a double-valve type of unit, inasmuch as single-screw vessels operating on the Sevastopol' crossings at the present time cannot always bring their bows right up to the mooring facility on the first approach, especially in a forceful wind, and tie up with their hawsers or manoeuver well and quickly under conditions of a crowded harbor berth.

As main engines these ferries use the economical ZD6 diesels with capacities of 110.3 kW each; these have become widespread in passenger ships engaged in coastal navigation.

Fire-fighting and drainage pumps, the basic and reserve pumps of the hydraulic steering mechanism, the hydraulic drive of the windlass, the fans for the air conditioning of the salon and the wheelhouse, as well as the compressor which ensures the operation of the system, are all put into action by shafts which take their power from the main engines with the aid of wedge-belttransmissions, and they can be switched on as needed.

The ship's electric power plant consists of two regular generators suspended over the main engines with a voltage of 24 V and a total capacity of 2.4 kW, along with storage batteries operating in tandem with them.

Start-up and running of the diesels, as well as the control over the basic parameters of their operation, are provided from the control board located in the wheelhouse. Under this system a continuous watch is not required in the engine room, and all the services to the ship are carried out by three persons.

For dispatcher communications the ferry is equipped with a "Lastochka" small-size radio-telephone station. Broadcasts of announcements and radio broadcasts from the air waves can be handled by the "Ryabina" apparatus. And this same set is utilized for service communications between the wheelhouse and the stern and between the wheelhouse and the bow. Subsequently it is intended to equip the "Molodezhnyy"-type ferries with "Lotsiya" radar units, which, in the opinion of their users, will allow us to continue operating the crossings in foggy weather.

The seaworthiness of this ship has been tested out under stormy conditions of approximately wind force 3. A sufficiently good capacity to withstand waves has been established, and there is a lack of flooding of the deck and windows. The rolling amplitude, judging by the declination of the list meter, does not exceed 8--9° . The periodic interval of inherent transverse vibrations, according to listing data in an empty state, is equal to 4.7 c. The diameter of the ferry's circling when the rudder is reset is equal to approximately two hull lengths, and when the screw propellers are operating "full out," a complete turn is executed practically on the spot.

During the switchover of the engines from full forward to full reverse the ship moves on for two hull lengths, whereas the braking time from the moment the command is given to full stop is 25 sec. When the engines are stopped, the ship moves foward by inertia for another 10 hull lengths.

At all rates of speed vibration is significantly lower than the values established by the USSR Registry and the sanitary norms. Unfortunately, this cannot be said about noise; the normative values for the latter have been exceeded somewhat.

As the tests have shown, the hot-air heating of the salon, which utilizes the heat of the water of the water used to cool the main engines, ensures the necessary heat regime of the passenger area. Nevertheless, the temperature in the wheelhouse has proved to be insufficient. Therefore, on the ships of this series the amount of air being supplied to the wheelhouse has been increased to 500 cu. m per hour. It has been proposed that the cooling system of the main engines to which two air heaters have been attached be filled with anti-freeze instead of water on the ships of this series. This will allow us to eliminate the overflow of water from the air heaters during periods of freezing weather and idle times at night.

The economic indicators of the new ferries may be judged by their quite high specific passenger capacity (250 kg of the ship's own weight per passenger), the lack in the superstructure components of expensive, lightweight alloys, the increased service life of certain elements of the ship, among which we may note the deck flooring and the increased thickness of the hull's exterior sheathing, as well as the use of propeller shafts made of stainless steel instead of ordinary steel whith chromium-cadmium cladding; the service life of the latter does not exceed 3--4 years.

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2384
CSO: 1829/288

OCEAN AND RIVER

MORE USE OF SECONDARY ENERGY SOURCES URGED UPON MERCHANT SHIPS

Moscow VODNYY TRANSPORT in Russian 23 Jun 81 p 2

[Article by Professor P. Akimov of the Leningrad Higher School of Marine Engineering Imeni S.O. Makarov, a member of the Board of the Leningrad Basin Water Transport Scientific-Technical Society: "Why are They Warming up the Wind?]

[Excerpts] Right now the economic utilization of energy resources is an important task of all branches of our national economy. In particular, a substantial reduction in the expenditure of fuel can be achieved by dint of using secondary energy resources.

Ninety-five percent of all the vessels in the Soviet maritime fleet have sufficiently economic diesel power units. Yet even they usefully utilize no more than 40 percent of the heat generated by the burning of the fuel. At the very same time, up to 35 percent of this heat excapes into the atmosphere together with exhaust gases, the temperature of which reaches 400 degrees or more. The heat of exhaust gases is a valuable secondary energy resource. If they were used to produce steam which could then be used in steam boilers, the work of this steam in turbogenerators would result in .04 kw of electric power being produced per 1 hp capacity of the main engine. With an engine capacity of over 12,000 hp, the energy produced by the turbogenerator would meet all of the ship's requirements for energy while under way and would make the expenditure of fuel for diesel generators unnecessary.

Use of exhaust gas heat from diesel engines has long been utilized on vessels with limited-capacity main engines. While the ship is under way, in those cases, utility boiler steam is used for both heating and service needs, which also results in a saving of fuel.

Not all of our steamship lines, however, pay sufficient attention to the utilization of secondary energy resources. The Novosibirsk Steamship Line has done a good job in getting this work under way. Thanks to the constant attention of ship's service and chief mechanic components, 6,000-7,000 tons of diesel fuel is saved in the operation of turbogenerators. The turbogenerators aboard vessels of the Georgian and Latvian Steamship Lines, even though there are not very many of them, are being well operated.

Unfortunately, secondary energy resources are far from being fully utilized aboard vessels of the Black Sea Steamship Line. On a number of vessels, the turbogenerators used are not in proper working order; diesel generators are used in their place and they expend precious fuel. Here and there, utility boilers frequently go out of order. Proper utilization of existing equipment would permit the Black Sea Steamship Line to achieve a savings from the use of secondary energy resources of not less than 2,500 tons per year. The utility boilers installed aboard certain vessels of the Far East Steamship Line have never worked (from the moment that they were installed).

Nor should we fail to comment upon the incorrect attitude adopted by design organizations of the USSR Ministry of the Shipbuilding Industry in regard to the utilization of secondary energy resources. Thus, in 1979, thanks to the intervention of maritime fleet agencies, the Water Transport Scientific-Technical Society, and "Vodnyy Transport", design organizations of the Ministry of the Shipbuilding Industry were compelled to re-do their design work for the series production of the"Pobeda" tanker and to review the matter of the utility turbogenerator unit. The design plans for specialized cargo vessels, in a number of instances, call for shaft generators to be used in the place of turbogenerators. There is no foundation for this because the substitution will result in a decline in fuel utilization indicators.

Heat given off by water used in the cooling process aboard diesel motor ships should also be included in secondary sources of energy. Its comparatively low temperature (no more than 70 degrees), however, allows this heat to be used only for salt water distillation purposes. Foreseeable in the future is the possibility (particularly in average processed engines) of increasing somewhat the temperature of water used for cooling. This will allow us to realize in greater measure this reserve for saving on heat aboard ship also. Utilization of secondary energy resources is something which needs to be done not only aboard newly-constructed vessels. The improved utilization of the heat of exhaust gases and of cooling water should be recommended also for ships in operation while they are in the process of being modernized.

Rational consumption of secondary energy resources aboard diesel motor ships of the martime fleet will allow us, within the next few years, to reach an efficiency level of up to 50 percent in our power-production units. Lowering fuel expenditure will promote a substantial increase in profitability for our merchant fleet and will conserve liquid fuel in short supply for other branches of the national economy of our nation.

9643
CSO: 1829/295

OCEAN AND RIVER

FOREIGN CARGO HANDLING AT PORT OF LENINGRAD IS CRITICIZED

Moscow VODNYY TRANSPORT in Russian 25 Jun 81 p 2

[Article by I. Mal'gin, manager of the Leningrad Office of the Soyuzvneshtrans All-Union Association under the USSR Ministry of Foreign Trade" "On the Basis of Contacts"]

[Text] A whole series of factors exert their influence upon the effectiveness of foreign trade. One of them is the actuality of contacts between foreign trade organizations and enterprises belonging to other branches of our national economy. The work experience of work collectives of the Leningrad transport network, which has received the support of the CPSU Central Committee, also serves in the long run in increasing the effectiveness of soviet foreign trade.

The freight contracting functions of the All-Union Soyuzvneshtrans Association have made its port office an indispensible participant in the system of uninterrupted planning. Knowing the source and destination of goods, their characteristics, plus the technical and economic requirements of markets and the interests of their clients, the Soyuzvneshtrans All-Union Foreign Trade Association carries out the necessary study and selection of delivery routes and facilities. The association is an organization which possesses the full volume of information on foreign trade cargoes. From this stems the role of Soyuzvneshtrans as a provider of information for the NPGRTU [expansion unknown].

In planning the forwarding of imported cargoes, transport process participants have in their possession information on cargo destination (from orders of all-union associations) and on schedules for the arrival of that cargo in port (from information provided by steamship line agents). The latter information arrives at the office, as a rule, prior to the ship's departure from port and contains enough of the details necessary for the issuance of further shipping orders. This operational volume of information -- the shunting of orders -- has shown itself to be particularly important under the transport network's working conditions in the simultaneous transshipment of goods via river, motor, and railroad transport, particularly in designating the routing for and use of special rolling stock (hopper cars).

Previously, what was particularly difficult was the shipment of small consignments of imported cargo from the port. Businesslike cooperation between railroad and port workers allowed us to organize this matter. Ports and stations jointly work out schedules for the putting together and the dispatching of assembled freight cars. Specially allocated warehouses are used for the accumulation of goods.

The flow of export cargo proceeding through the port of Leningrad is characterized by the predominance of general cargo and of particularly small freight consignments. Under these conditions, the NPGRTU makes possible the preparation and distribution ahead of time of freight by consignment, this in accordance with their volume-weight data and consignees in the nation to which they are destined. Together with the steamship line, calculations are made as to the optimal quantity of bill of lading cargo to be consigned to each vessel. Also drawn into this work are the all-union associations, which have been entrusted with the task of enlarging contractual consignments. A procedure has been developed for the port-to-port shipment of small consignments placed in container-lockers. At the present time, this type of cargo shipment is being improved upon and is on its way to supplementing containerized shipments to one consignee contained among consignments to other consignees in the same port. Every month, up to 1,000 such shipments are made ready, these varying from 1 to 50 kg each. Transport hub coordination councils supervise the packing of these containers.

Packing still remains an important problem in all methods of cargo shipment which are being used. The type and quality of such packing is a factor which determines the possibility of delivering cargo in general or the possibility of hauling cargo over long distances. This applies particularly to cases in which dangerous, large size, and heavy cargoes are being transported. In this connection, there has been placed before our Soyuzvneshtrans Office the task of facilitating the uninterruptability of the cargo transport process and striving, on the one hand, not to permit any layover of ships or freight cars and, on the other, of delaying cargo delivery.

What is necessary in order to do this is coordination of transport commercial conditions with participants in the transport process (steamship lines and railroads). What we must do also is to draw all-union associations and consignors of export cargo into this process, this for preparation of recommendations and instructions. Since it is already in possession of information as to consignments and delivery schedules, our office coordinates with the port as to lists of goods which could be made up into packets ahead of time or packed into containers for direct freight car-container shipments. Work based on NPGRTU will allow us to coordinate more precisely schedules for the availability of ships and for cargo readiness while, at the same time, not causing any disruption in the contractual obligations of foreign trade associations.

Continuation of this process lies in drawing enterprises of the Leningrad Economic Region into the containerization process. Within the port of Leningrad as a whole about 35 percent of the over-all number of containers which have been hauled into the area are packed.

One of the tasks of our office relative to the system of uninterrupted planning is that of providing timely and full documentation for foreign trade cargo and for transport facilities used in its haulage. This increase in the circulation of documents lags constantly behind the increase in the physical volume of cargo transferred. What we could do to facilitate the timely preparation of documents is to introduce a matrix system of single entries which would contain in one file all of the requisites for having this accumulated mass of information as to transport and cost documents copied out on multiplexing equipment.

However there is one gap in this system which has existed for a long time: carrier bills of lading were never made out. With the organization of transport hub work on the basis of the NPGRTU, the possibility presented itself of carrying out an experiment as to making out export cargo bills of lading right there within the office. At the present time, all of the legal documents for specialized diesel motor vessels produced at the container terminal are being put out by this method.

It was in such a manner that our end result was achieved -- that of the maximum reduction of schedules for the preparation of transport documentation without an increase in labor expenditure through use of new technical facilities.

The steady increase in the volume of foreign trade cargo processed in the port of Leningrad, expansion in the variety of cargo, plus an increase in the number of clients -- all of this leads to an increase in the volume of information processed. It is a complicated matter to process all of this mass of information within a compressed operational period. At the very same time, creation of a computer center of our own is not economically expedient. It was the business-like cooperation of neighbors which allowed us to resolve this problem. Automated control system data -- from both the NPGRTU and the ASU -- of the container port is used by our office departments. There is coordination as to the participation of Soyuzvneshtrans in the working out within the transport network of systems for keeping track of freight cars and cargoes. Being planned for the future is an automated control system for Soyuzvneshtrans' transport expedition center; it also will be coordinated with the automated control systems of other transport network participants.

Among the services which the Soyuzvneshtrans Association provides its customers in the port of Leningrad is that of cargo storage. The enclosed and heated 4-story warehouse with its 35,000 square meters of space is used for the concentration and supplementation of cargo destined for further shipment. The packing of goods into containers takes place there on the base. The activity of the base is also included in the technological lines of port uninterrupted planning and scheduling work.

In organizing the drawing up of all transport documentation, including bills of lading the Soyuzvneshtrans Association has the right, as expediter, in certain instances to draw up expediting schedules and to issue transport certificates for the goods being shipped through the base.

The Leningrad network lies in the path of the main transport routes between Europe and Japan, Iran, Afghanistan and vice versa. In order to maintain the competitiveness of these routes what is required is the precise coordination of the activity of transport workers. This is a matter of exceptional significance. Our well-ordered work in this field has enabled us to so organize the shipment of transit goods to Vostochnyy port that they are being sent aboard main line trains which have almost the speed of regular passenger trains. As to West-bound shipments, coordination of ship availability and train arrival schedules has enabled us to dispatch up to 30 percent of our transport containers using the railroad car to shipboard system.

Organizational measures in the field of coordinating the work of our transport network have advanced in our agenda the question of improving the structure of certain Leningrad organizations which are involved in the transport expediting of foreign trade good turnover. Soyuzvneshtrans Association prospects for accomplishing this involve the creation of a transport expedition center, construction of which is already being planned for the present five-year plan period.

That center could help us resolve transport questions of great complexity and to free its clients -- the foreign trade associations -- of a significant portion of their work, thus enabling them to devote all of their energy to commercial activity.

Observation of the interests of foreign trade associations over the entire course of goods haulage is the principal aim of Soyuzvneshtrans activity as an expediter. Fulfillment of this task is impossible without support of daily close contacts between goods haulers and our port workers. Work collaboration in its highest form of these relations will enable us to achieve the highest quality possible in rendering expeditious service.

9643
CSO: 1829/295

OCEAN AND RIVER

HYDROFOIL MOTORSHIP 'KOLKHIDA' DESCRIBED

Moscow MORSKOY FLOT in Russian No 6, Jun 81 pp 34-35, 37

/Article by B. Pavlyuk, chief engineer of the Potiysk Drydock and Shipyard imeni S. Ordzhonikidze: "Diesel Ship 'Kolkhida' on Underwater Wings"/

/Text/ Twenty years ago in the seaports of the Soviet Union and then abroad as well snow-white ships began to appear; they attracted attention by their unusual architecture and by their high speeds. These were hydrofoil ships of the "Kometa" type. They became an established part of our lives, and now in 1981 the new "Kolkhida"-type diesel ship is being tested; it represents the second generation of the "Kometa"-type diesel ships.

In order to develop these ships further, a trend was adopted to improve comfort for passengers and crew, safety of navigation, and improvement of operating conditions. Comfort has been achieved thanks to the use of new engines which reduce the noise level and vibration in the passenger and service areas, transferring the principal source of noise (the engine room) to the stern section of the ship, along with installing the main engines on dampers.

Basic Characteristics of the Ship

Length:	
Clearance	34.5 m
Design	30.0 m
Width:	
Clearance	10.3 m
Hull	5.8 m
Clearance height (From the water line):	
Afloat	8.9 m
While moving on the wings	10.8 m
Settling clearance:	
Afloat	3.5 m
While moving on the wings	1.9 m

Water displacement (i.e., tonnage):	
Empty	52.3 t
Full	68.0 t
Gross tonnage	143 reg. t
Capacity of main engines:	
Maximum	2 X 1050 kW
Cruising	2 X 960 kW
Speed:	
On wings and with full displacement	35 knots
In water-displacing position .	12 knots
Passenger capacity	120 persons
Range of navigation . . .	250 miles

The diesel ship "Kolkhida" completely meets the requirements of IMCO [Intergovernmental Maritime Consultative Organization] with respect to the safety of ships with dynamic principles of support. The diesel ship "Kolkhida" is a sea-going passenger vessel on underwater wings, designed to carry passengers during the daytime hours. It can navigate on seas and large lakes in countries with tropical or moderate climates. The ship was designed for the class USSR Registry KM ● $\boxed{2}$ A1A with passenger SPK [Hydrofoils].

This diesel ship can be operated on wings at wave heights of up to 2 m and winds of up to 5 points, while in a water-displacing condition it can be operated at wave heights of up to 3 m (with a 3 percent safety margin) and winds of 6 points.

The ship's hull and superstructure are of welded construction. The hull's contours are sharply swept back with two steps, a Y-shaped bottom, an inclined stem and a flow-around superstructure. The material of the hull and superstructure is an aluminum-magnesium alloy. The cross-section hull assembly consists of T-shape, angle-T-shape and I-shape frame ribs.

The longitudinal assembly along the bottom consists of rigid ribs, keels, stringers and carlings. Below the main deck the ship's hull is divided longitudinally by waterproof bulkheads into nine compartments.

The stability of the diesel ship at all speeds satisfies the requirements of the Safety Code for Ships with Dynamic Principles of Support; unsinkability is guaranteed if any two adjacent compartments are flooded. The effectiveness of the means of control is sufficient for handling the ship under any operating conditions.

Located on the main deck are the passenger salons: the bow salon with 29 seats and the stern salon with 91 seats; between them are the embarkation sections, two units and a gangway ladder to the deckhouse. Located in the ship's stern section are the engine room, auxiliary units, repair-service and fueling sections, air intakes, snack bar, two promenade and awning decks. Located on the latter is the deckhouse, which is partially sunk into the superstructure, as well as the mast and antenna apparatus, etc.

The presence of wing /foil/ apparatus is a characteristic trait of this type of vessel. It consists of two basic bearing underwater wings (bow and stern), a middle wing and a stabilizer. The wing apparatus is made of stainless steel and aluminum-magnesium alloys of various thicknesses. It has rotational flaps which are designed to reduce rough pitching,optimize the cycles of moving on the wings, and circulation. The flaps are located on the central part of the bow wing and on the side sections of the stern wing. Resetting of the wings is accomplished by means of traction proceeding along the appropriate wing struts and the system of automatic motion of the ship.

This diesel ship has installed two main engines of the 12 U396TS82 model (12-cylinder, 4-cycle, simple action, with a Y-shaped arrangement of the cylinders, gas-turbine pressure charging, and water cooling). The diesel engine's service reserve until its first overhaul is 9,000 hours, and its maximum service life is 12 years. Each drive shaft is rigidly connected with a flange of the engines' reverse clutches, and their angle of inclination to the main line is 14° , while the diameter of the shaft journals is 85 mm. The bearings are made of rubber and metal; the screw propellers are of the fixed-pitch type, capable of left and right rotation.

As an auxiliary electric power plant the diesel ship has installed a combination unit made by the Anton Kaiser firm, consisting of a 4-cylinder diesel with a capacity of 33 kW, a 6-cylinder freon compressor, a d.c. generator with a capacity of 4.5 kW, a self-acting circulation pump, and a start-up air compressor. The entire unit is mounted on a single frame. This combined unit also serves to ensure the operation of the air-conditioning system and to fill up the start-up tanks with compressed air.

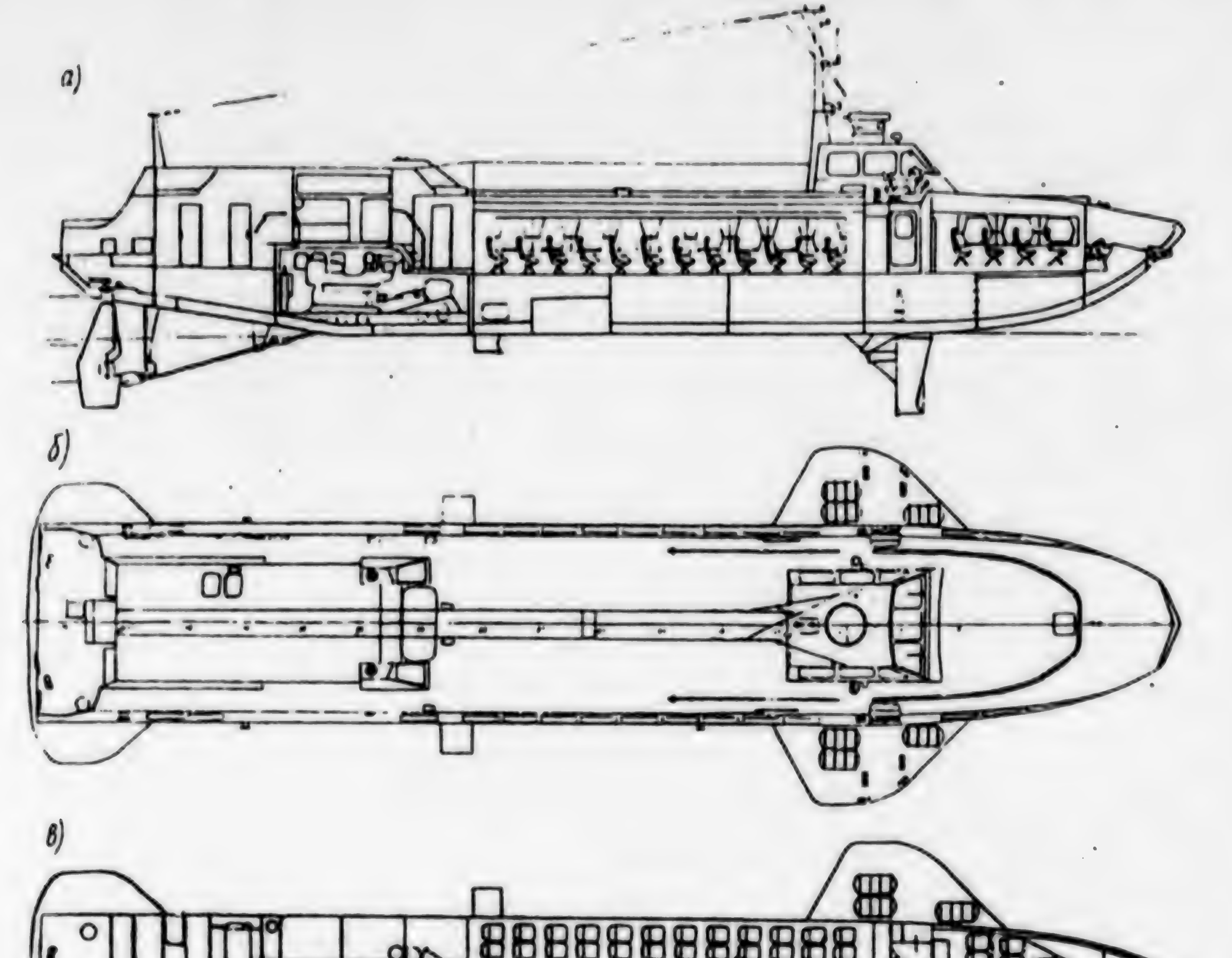
Serving as the principal sources of electric power on the vessel are generators suspended into the main engines, emergency generators for the air-conditioning system and storage batteries. The distribution of electric power is carried out through a feeder-group system, and the transmission runs along a double-cable system with commutation and protection at both poles.

A complete fuel supply is stored in a tank in the midship section of the hull, 380 kg of oil--in the crankcases of the main engines (70 kg of emergency oil supply is located in a reserve tank). Drinking water (420 liters) is stored in a tank situated in the snack bar under the ceiling. There is also a reserve food supply.

In order to ensure two-way communications with ships and the shore, receiving and transmitting radio stations have been installed; for loudspeaker communications a combination short-wave set has been installed. The ship has a navigational radar station, a gyro course indicator, and an induction log.

The diesel ship is equipped with a single Matrosov anchor weighing 75 kg; its hoisting is accomplished by means of an LGYa 20 MI hydraulic winch, as well as by the appropriate hawser, towing, and anchor apparatuses.

The diesel ship has installed a balanced rudder, cast of aluminum-magnesium alloy 40 mm thick. Resetting the rudder is accomplished by means of a main electro-hydraulic (by pressing buttons) and a reserve (manual) hydraulic system, as well



Key:
General layout of the ship: a--Side view; b--View from above; v--Deck plan
g, d, e--Cross-sections

as (as a distinguishing characteristic) an automatic rudder, which is included within the automatic system.

Along with the systems (fuel, oil, compressed air, gas exhaust, cooling of the service and fresh water, remote control of the main engines from the deckhouse) which service the mechanical plant, systems have been provided on the ship for extensive chemical and foam-type fire extinguishing; drying; petroleum-containing holds, service and drain water, drinking water, cooling of the ship's equipment, ventilation, as well as a hydraulic system designed to feed the hydraulic drives controlling the rudder, the flaps and the anchor winch. The air-conditioning system made by the Anton Kaiser firm operates for purposes of cooling or heating. Also provided on the ship is a system of automatic motion control designed to damp vibrations with respect to listing and trim difference for the purpose of reducing overloading, automatic course stabilization, the execution of coordinated turning, the assigning of optimum angles of trim difference when going up on the wings while controlling the flaps from the transmitting sensors, tracking remote control of the rudder.

Also installed on this diesel ship are 6 imported, 25-seat liferafts, as well as individual lifesaving equipment.

The passenger salons, crew's duty cabin, snack bar, and deckhouse are finished in airline-type vinyl simulated leather, laminated plastic and polyvinyl chloride decorative foam with a glued layer. The areas have vibration-damping roofs and fire-resistant insulation. In the passenger and service areas the floors are covered by carpeting made out of "Avistra" material. The passenger salons are equipped with soft, airliner-type armchairs with reclining backs. The duty cabins, control post, snack bar, deckhouse, and other areas are equipped with everything necessary to create the maximum convenience for the passengers and crew members.

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TRANSPORTATION IN 1981-1985 REVIEWED

Moscow GRAZHDANSKAYA AVIATSIYA in Russian No 5, May 81 pp 2,4

/Article by D. K. Zotov, chief of the Transport Division, USSR Gosplan: "Transportation in the Service of the Five-Year Plan"/

/Excerpts/ A large role in increasing the country's economic potential has been relegated to transportation. It has been assigned the task meeting more fully and on schedule the requirements of the national economy and the population in hauls within the further development of all types of transportation, as well as improving the efficiency and work quality of the transportation system. Noting the enormous importance of transportation, Comrade L. I. Brezhnev called it a key sector of the national economy. It is inextricably linked with the solution of all large-scale economic and social problems.

The Soviet Union has a mighty transportation system at its disposal, uniting all forms of transport. It has an abundant supply of railroad rolling stock, fleet, motor-vehicle and aircraft pools, fundamentally meeting the up-to-date requirements of scientific and technical progress. In 1980 the freight turnover of all forms of our transport amount to approximately 7 trillion ton-kilometers, while passenger turnover comprised 900 billion passenger-kilometers. Less than one week is required by Soviet transport to cope with a freight turnover which it took all of 1913 for Tsarist Russia to accomplish. Transportation now accounts for about 20 percent of fixed production assets, 10 percent of all capital investments, and 10 percent of energy resources. It employs 10 percent of all workers in our country.

By the end of 1980 the length of the railroad network had amounted to approximately 142,000 kilometers. Of these about 31 percent have been electrified; more than 33 percent have second tracks and double-track sections. The conversion of the railroads to electric- and diesel-locomotive traction has basically been completed. The construction of the Baykal-Amur Mainline, which is to ease the load on the Trans-Siberian Mainline and become an important means in developing the rich natural resources of Siberia and the Far East, has entered into its culminating phase. The locomotive pool has an abundant supply of heavy-duty VL-8 and VL-10 electric locomotives. The proportion of diesel locomitives with capacities of 6,000 hp amounts to more than 30 percent. The structure of the freight-car pool has substantially changed; there has been an increase in the proportion of specialized cars; the average freight-hauling capacity of a car has increased to 60.8 tons.

Maritime transportation has received such development as to ensure the independence of our foreign trade from the foreign freight-hauling market. The total tonnage of the maritime fleet has surpassed 18 million tons. Soviet-built tankers have been put into operation with a load capacity of 145,000 tons, petroleum and ore carriers--100,000 tons, as well as atomic ice-breakers and seagoing railroad ferries. There has been considerable expansion of the traffic capacities of seaports in all basins. New ports have been built--Il'ichevsk on the Black Sea and Vostochnyy in the Far East.

The most important integrationist measure within the framework of CEMA is the maritime railroad portage now existing between the Soviet port of Il'ichevsk and the Bulgarian port of Varna. More than 2 million tons of cargo was hauled over it in 1980. In all the Ministry of the Maritime Fleet carried more than 220 million tons of cargo last year alone.

Air transportation occupies an important place within the transport system for carrying passengers. It accounts for approximately 18 percent of all passenger turnover. In 1980 it carried more than 103 million persons. Our air routes reach almost a million kilometers. Within the country they have been extended to 3,600 cities and large populated points, as well as to more than 100 cities in 85 foreign countries. Air transport is very important in developing new regions of the country in Siberia, the Far East, and the Far North. In a number of regions air transport serves as the basic means of carrying passengers and cargoes. Aviation-chemical operations in agriculture and forestry are performed every year over an area of more than 90 million hectares.

A leading role in passenger hauls is occupied by the Il-62, Tu-154, and Tu-134 turbojet airplanes. They account for about two-thirds of air transport operations. Successful use is made of the Il-76 heavy-duty cargo planes. Since the end of last year the 350-seat Il-86 passenger airplane and the 120-seat Yak-42 passenger airplane have been in operation along the air routes. Further development has been achieved by airports, automated flight control systems, selling tickets and reserving seats on airplanes, and centralized fueling and servicing of airplanes. At 25 airports airline terminals and pavilions have been built with a total traffic capacity of 16,000 passengers per hour. They include large airline terminals at Sheremetevo, Vnukovo, Tallinn, Rostov-on-Don, Frunze, and Yerevan.

The role of motor-vehicle transport has grown. In 1980 alone general-purpose motor-vehicle transport comprised the following: freight--6.4 billion tons, passengers--more than 42 million persons. And in toto last year motor-vehicle transport hauled more than 24 billion tons of freight. Motor-vehicle transport has become an indispensable link within the technological processes of such ministries as the Ministry of the Coal Industry, the Ministry of Non-Ferrous Metallurgy, the Ministry of the Construction Materials Industry, and others. International hauls by motor-vehicle transport have also developed. In order to increase the effectiveness of mass hauls, the structure of the truck pool has been improved. The proportion of large-capacity trucks and truck trains has been increased. Production has begun on dump trucks with a load capacity of 78 tons and dump-truck trains capable of carrying 120 tons.

All-Union and republican roads, as well as oblast and local roads have been built and modernized. Construction has been completed on the following very important main highways: Moscow--Volgograd, Moscow--Kaluga--Bryansk--Sevsk, Leningrad--Murmansk, Kuybyshev--Ufa--Chelyabinsk. Such major cities as Ufa, Sverdlovsk, Chelyabinsk, and Tyumen' have been connected by the nationwide highway network. Quite a few rayon centers, kolkhozes, and sovkhozes have received modern roads.

Great changes are also occurring in river transport; in 1980 hauls within this sector amounted to approximately 140 million passengers and 565 million tons of cargoes. The transport fleet has been supplemented by large-tonnage diesel ships and tankers with cargo capacities of up to 5,000 tons, as well as barges and tugs which have allowed us to make the transition to heavyweight barge-trains carrying as much as 12,000 tons. The passenger fleet has also been added to. It has acquired ships with greatly improved accommodations. Combined-navigation (river-sea) vessels are in operation successfully. The total length of navigable waterways now exceeds 120,000 kilometers, including 14,000 kilometers of manmade waterways. By the end of the 10th Five-Year Plan more than 80 up-to-date navigable locks were in operation on the waterways. The total length of mechanized wharves consisted of more than 90,000 running meters. The work of river transport is becoming more and more important in providing hauls in the country's northern and eastern regions.

An important role in the work of the transportation system and the production sectors is played by industrial transport. Its complex of technical means comprises many thousand kilometers of railroad tracks and highways, a high-capacity pool of railroad and motor-vehicle rolling stock, a large number of ships, means of continuous transport, and other capital assets.

It should be noted, however, that, in connection with the outstripping growth rate of the productive forces of Siberia and the Far East, the necessity for hauling great masses of commodities, particularly fuel and energy cargoes, from these areas to the Central Industrial Region, as well as because of shortcomings in administering and utilizing the transportation process, transport, especially railroad transport, has still not fully satisfied the requirements of the national economy with regard to freight and passenger hauls. In order to solve this problem, a number of organizational and technical measures have been specified in the 11th Five-Year Plan with respect to intensifying the utilization of capital assets and to develop the material-technical base of the country's transport system. Particular attention is being paid to perfecting the organization of the transport process, improving the coordination of the work of all types of transport, the structure of the rolling stock and the fleet, improving the quality of the technical means, ensuring widespread specialization, and introducing new equipment.

Great importance in the 11th Five-Year Plan and for the more distant future is accorded to the mechanization and automation of all operations in the national economy, along with the reduction of manual labor. One of the principal means of mechanizing loading and unloading operations is the containerization and packaging of freight. By 1990 it is intended to basically accomplish the creation of a highly efficient containerized transport system. The volume of freight hauls in universal containers for transport as a whole is scheduled to increase during the years 1981--1985 by a factor of 1.7. Moreover, general-purpose transport in the last year of the five-year plan is to carry approximately 130 million tons of freight in containers and 430--480 million tons in packages. In order to provide for the success of this program, it is planned to increase the delivery of universal and specialized containers, reusable and one-time-use pallets, as well as slings for packaging lumber. Production is planned for new, specialized transport and freight-handling means, along with the creation of 144 new containerization points.

Implementation of the measures outlined for developing container and package-type hauls will allow us already in the course of the 11th Five-Year Plan to free more than 220,000 persons from heavy physical labor and to reduce the outlay of metal on the manufacture of containers and packaging by approximately 200,000 tons and that of lumber by 13 million cubic meters.

It is planned to basically complete in all forms of transport the development and introduction of a complex of measures with regard to automated control of the hauling process, progressive technology, and automatic control systems, which will allow us to considerably improve service to clients and passengers, including those involved in international hauls.

The freight turnover of railroad transport will increase by 14--15 percent, while passenger turnover will grow by 9 percent. In order to improve the utilization of technical means, it is intended to increase train weights and speed up the turnover of freight cars. The latter is to be achieved by means of curtailing the idle time of cars undergoing freight and technical operations, as well as increasing the speeds of train traffic.

A characteristic trend will be the increase by outstripping growth rates of double-track and multiple-track electrified railroads, equipped with automatic block signaling and dispatcher centralization of the railroad track. Plans have been made to introduce 3,600 kilometers of new railroads, 5,100 kilometers of second tracks, and to electrify at least 6,400 kilometers of lines. The introduction of production capacities has been provided basically on the railroads of the Urals, Siberia, and the Far East, where the greatest growths of freight hauls are anticipated. It is intended to open up through train traffic on the BAM, to strengthen the Central Siberian Mainline with egresses to GlavSib and YuzhSib; it has also been planned to electrify the Trans-Siberian Mainline to Khabarovsk. There will be further development of plant and line repair bases. Provisions have been made to deliver new, mainline electric locomotives with capacities of 10--11,000 kW, diesel locomotives with capacities of 4--6,000 hp in sections, as well as 380,000 cars with more advanced characteristics and broader specializations.

The maritime fleet will be supplied with ships having a total displacement of more than 3.2 million tons deadweight /commercial load/. It will be supplemented with container-carriers, roll-trailers, lumber-carriers, package-carriers, lighter-carriers, railroad and passenger-auto ferries, as well as by icebreaker-transport vessels. The capacities of seaports will be increased by 22 million tons by means of technical retooling, modernization, expansion, and the construction of new cargo-handling mechanized complexes. This pertains primarily to the ports of Vostochnyy, Vladivostok, Magadan, Tiksi, Yuzhnyy, Novorossiysk, Zhdanov, Leningrad. There will be continued development of drydock enterprises and bases for technical servicing of the fleet. As before, the principal task of the maritime fleet is still the provision of export-import and coastal hauls, as well as the export of transport services. It has now been confronted with the task of providing year-round navigation in the western region of the Arctic, including the regions of Noril'sk and the eastern shore of Yamal island.

In river transport the cargo turnover will be increased by 19--20 percent. Its role is being significantly increased in the country's eastern regions in connection with measures to extend navigation on the rivers. The fleet is being supplemented with icebreaking transport ships, heavy-duty pusher-tugs, barges for large-cargo barge trains, vessels for mixed navigation (river-sea), and comfortable passenger diesel ships. The formation of the integrated deep-water system of the European part of the USSR will be basically completed. It is planned to put into operation mechanized wharves with a total length of approximately 8,500 running meters.

Hauls by motor-vehicle transport of the general-purpose type will grow by a factor of 1.4, i. e., more than in railroad and airline transport. This is brought about by the requirements of the national economy for motor-vehicle hauls. Increase in the hauls will be provided, for the most part, by means of a growth in labor productivity. The intention is to increase the dieselization of the motor pool, to increase the load capacity for hauling bulk freight by means of supplying MAZ and KASAZ motor-truck trains with load capacities of 25--30 tons, together with increased deliveries of trailers and semi-trailers. The motor pool will also be supplemented by vehicles of lesser load capacities. Plans have been made to speed up the development of a support network of main highways and the construction of general-purpose roads, linking rayon centers and the central farmsteads of kolkhozes and sovkhozes. Work will be continued on building and modernizing the most important highways, in particular, Moscow--Khar'kov--Simferopol', Moscow--Minsk--Brest, Chita--Khabarovsk--Nakhodka, and others. It is intended to put into operation about 80,000 kilometers of general-purpose highways.

An extremely important role has been assigned to civil aviation in providing passenger hauls, especially in the regions of the Far North, Siberia, the Far East, as well as transporting goods and performing agricultural, fire-fighting, and other operations necessary for the national economy. Its cargo turnover will increase by a factor of 1.4 times and its passenger turnover by a factor of 1.3 times. The use of aviation in the national economy is envisioned in 1985 to amount to 15.7 million logged hours. The material and technical base of civil aviation will be developed. Plans are to make an extensive introduction of new passenger airplanes of the Il-86 and Yak-42 types, the Il-76 heavy-cargo airplane, and a number of other new types of equipment. The helicopter pool will be expanded. During the 12th Five-Year Plan it is intended to complete work on creating and to begin introducing a new generation of airplanes and helicopters with improved technical and economic characteristics, including those with respect to expenditure of aviation fuel and with regard to the requirements for environmental protection. There will be significant expansion in the use of on-board and ground systems of automatic air traffic control, along with that of airplane take-offs and landings.

The capital investments being planned for the development of air transport ought to ensure the introduction during the years 1981--1985 of at least 10 take-off and landing zones at the major airports and no less than 46 at the airports of local airlines. During the 11th Five-Year Plan provisions have been made for construction and modernization at the airports of Krasnodar, Ordzhonikidze, Noril'sk, Blagoveshchensk, Yuzhno-Sakhalinsk, Yakutsk, Sukhumi, Minsk, Sverdlovsk, Tyumen', Omsk, Sochi, and others. Along with this, it is necessary to expedite the construction of airline terminals, aviation technical bases, warehouses of fuel and lubrication materials, and other facilities for ground services which allow effective use to be made of the airplane motor pool and to improve services to passengers and cargo shippers. We must pay particular attention to the comprehensiveness of construction and not allow a situation to occur whereby capital investments do not provide a full yield because of the lack of certain airport or repair units.

But it is not only the growth of the material and technical base which must provide an increase in operational volumes. Intensifying the use of existing and newly created fixed capital assets constitutes a very important task for the workers in civil aviation. And the primary path to attain this goal is to increase labor productivity, by means of which an increase of at least 75 percent in operational volumes is planned in Aeroflot.

A very important task issavings on fuel, the specific outlay of which must be cut back by at least 3--5 percent in 1985, as compared with 1980. This has to be achieved both by means of creating and introducing new and more economical airplanes and by means of organizational-technical measures. The distribution of airplanes by airlines which correspond in an optimum manner to their tactical and technical data, very carefully thought-out flight scheduling, precise supplying of fuel and lubrication materials, searching for ways to save on them in all possible ways, and a number of other departmental measures are called upon to facilitate the careful expenditure of GSM /fuel and lubrication materials/.

Increasing the flight time for each airplane, the maximum utilization of their commercial load and of passenger seats should also become a means for the more effective use of the airplane motor pool. Moreover, increasing flight safety and improving passenger service has been and remains the most important point in the work quality of civil aviation.

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